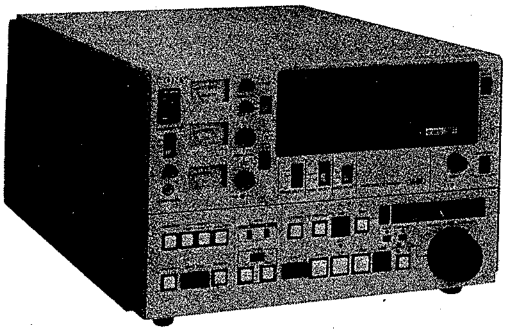
SONY®

VIDEOCASSETTE RECORDER

BVU-850P



Professional U-matic SP
OPERATION AND MAINTENANCE MANUAL
Volume 1 2nd Edition (Revised 1)
Serial No. 10041 and Higher

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SECTION 1
OPERATION

1-1. FEATURES

1-1-1. New Format

Newly developed SP (Super Performance) format
The new SP format raises the Y-carrier by 0.8 MHz, thus creating a wider bandwidth, and consequently, a higher quality picture. A new high-grade tape is ready for use to make the best use of the SP format, which is called the SP format tape. When a new SP format cassette tape is inserted, recording is automatically made with the new SP format.

Interchangeability between new SP format and conventional recording format
The BVU-850P can use both the new SP format tape and the conventional U-matic tape, and can employ both SP format and conventional format recording/playback respectively. The SP/conventional mode circuit automatically detects the recording format to be used, or the format of the already recorded tape for playback. Conventional KCA or KCS tape automatically uses the conventional format. The SP indicator lights during recording or playback using the SP format.

1-1-2. Audio

High quality audio signal recording
The sendust audio head permits audio recording with a high frequency response.

Audio noise reduction system with auto Dolby detector
The BVU-850P employs the Dolby NR* system to reduce tape noise. The Dolby NR audio noise reduction system can be switched on or off as desired during recording. During playback, the Dolby NR system is automatically activated if the tape has been recorded with Dolby sound.

Other audio system features
The audio recording and playback levels can be adjusted separately. If necessary, a limiter can be activated so that virtually distortion-free recordings of sudden, very strong input signals can be made. The channel 1 and channel 2 audio signals can be mixed while recording.

* "Dolby" and the double-D symbol are trade marks of the Dolby Laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

1-1-3. Video

Capstan servo
The BVU-850P incorporates a capstan servo circuit which locks onto the external signal.

Framing servo
This servo identifies each even and odd field in a given frame, to ensure that edits occur precisely between the end of an even field and the start of the next odd field.

Color framing
The color framing circuit identifies each of the four fields and aligns the fields to prevent color flashing at the edit point.

Direct drive system with DC motors
Quick access to edit points is possible since independent DC motors drive the drum assembly, capstan assembly, supply and take-up reels, and the tension on the tape is precisely set by a servo system.

ϕ2 (phi square)-servo loop circuit
This circuit ensures the proper H-phase alignment of the playback signal and the input signal so as to prevent picture disturbances ("flagging" or "whipping") at the edit point.

Chroma enhancement
The built-in chroma enhancer sharpens the edge of each chroma signal.

Automatic/manual video recording system
The video system features either automatic or manual video recording level control.

1-1-4. Editing

Edit functions
In assembly editing, video, audio channel 1, and channel 2 signals can be edited simultaneously. In insert editing, video, audio channel 1 and channel 2 signals can be edited independently. The edited material can be viewed before and after recording.

Quick access to the edit points
Search functions providing a recognizable picture in the shuttle mode (in which the playback speed can be varied in 16 steps from 1/30 to 10 times normal speed in both forward and reverse) and the jog mode (in which the picture changes as the search dial moves), enable operators to locate the editing point more quickly. Color pictures can be monitored at speeds from −5 to +5 times normal speed.
Also, a recognizable picture can be obtained in the fast forward and rewind mode, when the tape is threaded around the drum and using a time base corrector.

Editing/duplicating connectors
The dubbing input and output connector allows editing and duplicating of video signals to be edited and duplicated with little degradation.

Remote control
When editing using two BVU-850P video cassette recorders, the front panel controls of the recorder can be used to control the player.

1-1-5. Other Features

Front access
Every operation, including cassette insertion and removal, can be performed from the front panel, which can be tilted up to 90° (6 steps) for convenience. The front panel can be removed so that it can be used as a remote control unit when connected to the optional BK-802 remote control cable.

Indicator lamps
The indicator lamps are conveniently located on the front panel to notify the operator of the condition of the color framing servo lock, Dolby function, SP format, internal moisture condensation and time code recording/playback, and of the operation of the capstan and drum servo lock.

Digital time counter
The time counter measures tape advancement by counting the CTL signals to facilitate the precise locating of editing points. It also indicates the editing lap time.

Auto rewind/auto stop
At the end of the tape, the tape rewinds automatically to the beginning (auto rewind).
At the beginning of the tape, the tape stops automatically (auto stop).

Plug-in type boards
Plug-in boards are designed to simplify servicing and maintenance, and can be reached by simply removing the top panel.

1-1-6. Options

Time code recording/playback function
The tape has a special channel, the address track, to allow the EBU time code to be recorded and played back without sacrificing an audio channel having a time code generator and reader.

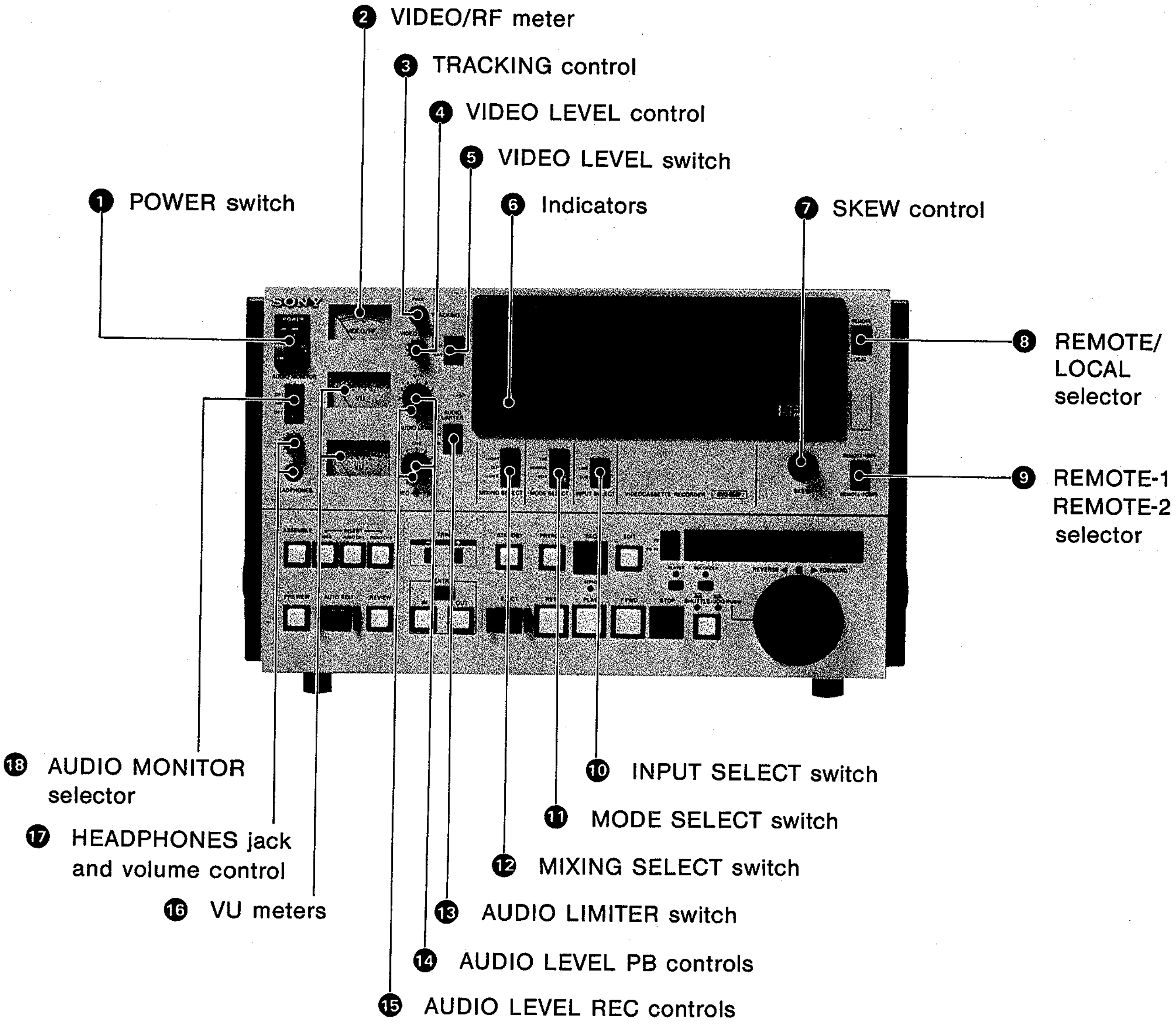
Time base corrector (TBC) connection
The TBC connector allows a time base corrector with an 18-pin VTR connector to be easily connected. For other time base correctors, the BVU-850P is also equipped with an external subcarrier input connector, an external sync input connector and an rf output connector.

Mountable in standard 19-inch rack
The BVU-850P can be mounted in a standard 19-inch rack.
For rack mounting, refer to Section 2.

1-2. LOCATION AND FUNCTION OF PARTS AND CONTROLS

1-2-1. Control Panel

Upper panel


② VIDEO/RF meter
③ TRACKING control
④ VIDEO LEVEL control
⑤ VIDEO LEVEL switch
① POWER switch
⑥ Indicators
⑦ SKEW control
⑧ REMOTE/LOCAL selector
⑨ REMOTE-1 REMOTE-2 selector
⑱ AUDIO MONITOR selector
⑰ HEADPHONES jack and volume control
⑯ VU meters
⑩ INPUT SELECT switch
⑪ MODE SELECT switch
⑫ MIXING SELECT switch
⑬ AUDIO LIMITER switch
⑭ AUDIO LEVEL PB controls
⑮ AUDIO LEVEL REC controls
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❶ POWER switch

Press ON to turn on the power. The meters and the counter figure 0:00:00:00 will light up.

❷ VIDEO/RF meter

Indicates the input video level during recording or E-to-E mode.

Indicates the playback FM signal level (tracking level) during playback.

❸ TRACKING control

This control adjusts the tracking of the tape during playback.

Normally set this control to the center FIXED position. When noise appears in the playback picture, turn this control to the left or right so that the VIDEO/RF meter ❷ pointer points to the maximum value. After playing a noisy tape, return the control to the FIXED position.

While recording, always set this control to the FIXED position. If you adjust the control during recording, the playback picture may be unstable.

❹ VIDEO LEVEL control

Adjusts the input level of the video signal when the VIDEO LEVEL switch ❺ is set to MAN.

Turn this control when the unit is in the E-to-E mode, so that the pointer of the VIDEO/RF meter ❷ is in the blue zone.

❺ VIDEO LEVEL switch

AUTO: The sync AGC (automatic gain control) circuit is activated and the proper level of the input video signal is automatically obtained. The sync AGC circuit detects the input sync signal level and provides automatic gain control.

MAN: The input level of the video signal can be manually adjusted with the VIDEO LEVEL control ❹.

❻ Indicators

FRAMING: Lights when the COLOR FRAMING switch on the rear panel is set to ON and the color framing mechanism is activated.

TIME CODE:Lights when the time code signals are being recorded or played back.

DOLBY: Lights when the unit is in the record mode or in the E-to-E mode during recording when the DOLBY NR switch is on. Also lights when a tape recorded with the Dolby NR system is played back.

SP: Lights when the SP/conventional mode circuit detects the SP mode. This indicator will turn off during playback of a tape recorded conventionally, even if the tape used is an SP format tape.

AUTO OFF: Lights when moisture is detected inside the unit or when tape tension is irregular.

❼ SKEW control

Normally set to the FIXED positon.

Turn this control when the top of the picture is distorted to adjust the tension of the tape. This control automatically returns to the FIXED positon when the unit is set in the record mode.

❽ REMOTE/LOCAL selector

REMOTE: Set to the position when the unit is to be controlled through the equipment connected to the 9-pin REMOTE 1 connector or the 36-pin REMOTE 2 connector panel. The function buttons on the unit (except for the STOP and EJECT buttons) will be inoperative.

LOCAL: Set to this position when the function buttons on the unit are used to control the unit and the connected equipment.

❾ REMOTE-1 (9P)/REMOTE-2 (36P) selector

When the REMOTE/LOCAL selector ❽ is set to REMOTE, set this selector accordingly.

REMOTE-1: When the 9-pin REMOTE-1 connector is used.

REMOTE-2: When the 36-pin REMOTE-2 connector is used.

❿ INPUT SELECT switch

Selects the video signals to be recorded.

LINE: For the composite video signal connected to the VIDEO IN connectors.

DUB: For the video signal from the DUB IN connector.

⓫ MODE SELECT switch

Selects the reference signal for the servo lock.

TBC: When playing back tape with a TBC connected

NORMAL: When playing back tape without a TBC connected or when recording.

EDIT: When editing.

The setting of the SERVO LOCK selector among other things determine the reference signal to be selected. See the table on page 1-16 “To select the reference signal”.

⓬ MIXING SELECT switch

Selects the audio channel on which the mixed audio signals of the channels 1 and 2 are to be recorded. (The setting is also effective for the E-to-E mode.)

To CH-1: The mixed signal will be recorded on channel 1. On channel 2, the audio signal of channel 2 only will be recorded.

OFF: The audio signal of channel 1 and channel 2 will be recorded on channel 1 and channel 2 respectively.

To CH-2: The mixed signal will be recorded on channel 2. On channel 1, the audio signal of channel 1 only will be recorded.

⑬ AUDIO LIMITER switch

This switch operates the limiter control circuit which limits sudden surges of input signals to a fixed level during recording so that satisfactory recording characteristics can be obtained with low distortion. After adjusting the audio recording level with the AUDIO LEVEL REC controls ⑮ , turn on this switch.

⑭ AUDIO LEVEL PB controls (inner control)

Adjust the audio output level of channel 1 and channel 2.

Turn these controls when the unit is in the playback mode so that the maximum value on the VU meters ⑯ is 0 VU.

⑮ AUDIO LEVEL REC controls (outer control)

Adjust the audio input level of channel 1 and channel 2.

Turn these controls when the unit is in the E-to-E mode for recording so that the maximum value on the VU meters ⑯ is 0 VU.

⑯ VU meters

Indicate the input audio level when the unit is in the record or E-to-E mode, and the output audio level when the unit is in the playback mode.

⑰ HEADPHONES jack and volume control

Connect 8-ohm stereo headphones here to monitor audio during recording, edit recording or playback. Adjust volume with this control.

⑱ AUDIO MONITOR selector

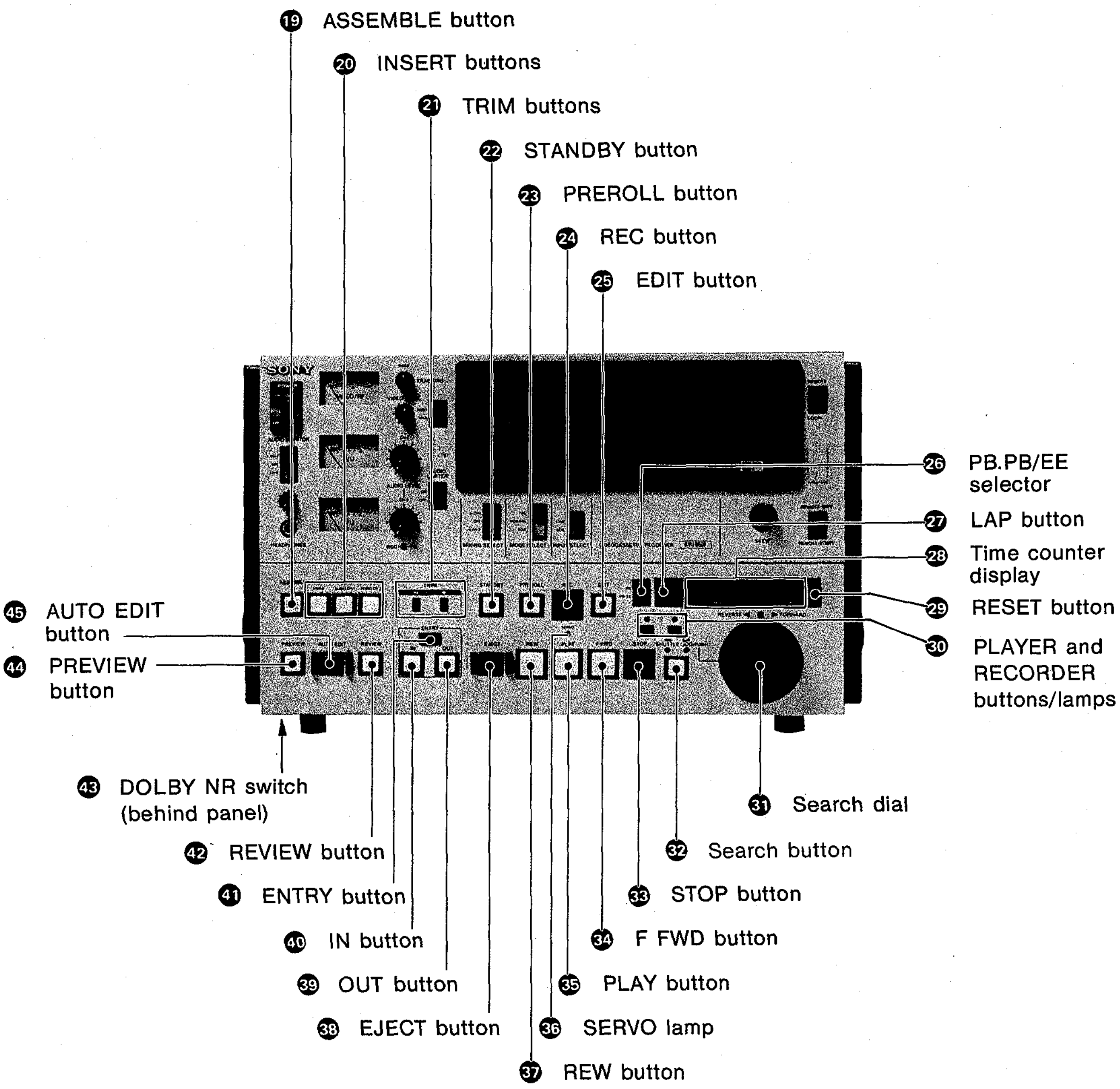
Selects the audio output signal from the HEADPHONES jack ⑰ and the MONITOR connector ⑫ , or from the AUDIO OUT MONITOR connector ⑯ on the connector panel.

CH-1: Audio channel 1 sound.

MIX: From the HEADPHONES jack, channel 1 sound from the left and channel 2 sound from the right. From the AUDIO OUT MONITOR connector and the MONITOR connector, mixed sound of both channels.

CH-2: Audio channel 2 sound.

Lower panel


⑲ ASSEMBLE button
⑳ INSERT buttons
㉑ TRIM buttons
㉒ STANDBY button
㉓ PREROLL button
㉔ REC button
㉕ EDIT button
㉖ PB.PB/EE selector
㉗ LAP button
㉘ Time counter display
㉙ RESET button
㉚ PLAYER and RECORDER buttons/lamps
㉛ Search dial
㉜ Search button
㉝ STOP button
㉞ F FWD button
㉟ PLAY button
㊱ SERVO lamp
㊲ REW button
㊳ EJECT button
㊴ OUT button
㊵ IN button
㊶ ENTRY button
㊷ REVIEW button
㊸ DOLBY NR switch (behind panel)
㊹ PREVIEW button
㊺ AUTO EDIT button
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⑲ ASSEMBLE button

Press this button to set the unit in the assemble edit mode. The button lights up in the assemble edit mode and turns off when the mode is released.

⑳ INSERT buttons

Press one of these buttons to set the unit in the insert edit mode and to select the input signal for editing. The button lights up in the insert edit mode and turns off when the mode is released.

㉑ TRIM buttons

The entered edit points can be modified any number of frames. While pressing the IN ㊵ or OUT ㊴ button, press the TRIM + or TRIM − button. Every time the TRIM + button is pressed, the edit point advances one frame, and every time the TRIM − button is pressed, the edit point returns one frame.

㉒ STANDBY button

When the power is on, the STANDBY lamp lights indicating that the drum is rotating and the unit is in the standby mode.

When this button is pressed during the stop mode, the drum will stop rotating and the tension on the tape will slacken to protect the video head from being clogged. To put the unit in the stop mode or in another function mode, press the STANDBY button or the desired function button (except the STOP button).

㉓ PREROLL button

Press this button to run the tape at a high speed to a preroll point 10 seconds (or 5 seconds depending on the setting of the internal preroll time switch) prior to the IN point.

If the edit-in point has not been entered and this button is pressed, the point where the button has been pressed will be entered as the IN point and the preroll will proceed.

㉔ REC (record) button

Press this button and PLAY button ㉟ simultaneously to start recording. Press this button in the playback, search, fast forward or rewind mode to monitor the E-to-E mode video and audio. Press this button in the stop mode to enter the E-to-E mode. Press the STOP button to set the unit in the stop mode.

㉕ EDIT button

Press this button and the PLAY button ㉟ simultaneously to start the manual edit-recording.

Pressing this button in the playback, search, fast forward or rewind mode to monitor the E-to-E mode video and audio. Press this button in the stop mode to enter the E-to-E mode and to monitor the input signal selected by the ASSEMBLE ⑲ or INSERT ⑳ buttons. Press the STOP button to set the unit in the stop mode.

㉖ PB.PB/EE selector

Selects the video and audio signals to be monitored. For details, see the table on page 1-16.

㉗ LAP button

After the IN and OUT points have been entered, press this button to display the lap time (duration between the IN and OUT points) on the time counter.

㉘ Time counter display

Indicates the tape running time in hours, minutes, seconds and frames by counting the CTL signals, or by reading the time code recorded on the tape.

㉙ RESET button

Press this button to reset the time counter number and to clear the entered edit points.

㉚ PLAYER/RECORDER buttons/lamps

Use these buttons when the unit is connected to editing equipment having a 9-pin REMOTE-1 connector and is to be used as the recorder of an editing system.

PLAYER button: Press this button and the PLAYER lamp will light and the function buttons on the unit will control the connected player.

RECORDER button: Press this button and the RECORDER lamp will light and the function buttons on the unit will control the unit.

- When the unit is used singly, the PLAYER and RECORDER buttons do not function.

㉛ Search dial

Turn this dial to quickly locate the desired edit point. Clockwise rotation makes the tape run forward (▷ lamp lights), counterclockwise rotation makes the tape run backward (◁ lamp lights). When the tape is stopped, the □ lamp lights.

Push in the dial to set the jog mode. Push it in again to set the shuttle mode. The corresponding lamp will light.

SHUTTLE: Turn the dial clockwise or counterclockwise. The tape speed can be varied from 1/30 to 10 times normal in either direction. At the center position, a still picture is obtained.

JOG: Turn the dial and the tape runs in the direction and at the speed of the rotation from 0 to 1 normal speed. When you stop the rotation of the dial, a still picture will be obtained.

Note

When the power is turned on, be sure to set the dial to the center position before it is used.

㉜ Search button

Press this button to set the unit in the search mode. Press this button after setting the search dial to the appropriate position in the shuttle mode, and playback will begin at the speed set by the search dial.

㉝ STOP button

Press this button to stop the tape. A still picture will appear on the monitor screen. In the stop mode, the drum rotates and the tape is threaded.
When a cassette is inserted into the unit, the unit is automatically set in the stop mode.

㉞ F FWD (fast forward) button

Press this button to advance the tape rapidly.

㉟ PLAY button

Press this button to play back the tape.
Press this button and the REC ㉔ or EDIT ㉕ button simultaneously to start recording or manual edit recording. Press this button again to stop recording or edit recording. The unit will then enter the playback mode.

㊱ SERVO lamp

Lights when the drum servo and the capstan servo are locked.

㊲ REW (rewind) button

Press this button to rewind the tape.

㊳ EJECT button

When this button is pressed, the tape is unthreaded and the cassette is ejected. The counter is reset to "0:00:00:00" when the time counter functions in the CTL mode.

Note

Be sure to eject the cassette before turning off the power.

㊴ OUT button

Press this button and the ENTRY button ㊶ simultaneously to enter the OUT point. Press this button after entering the OUT point to display the data of the OUT point on the time counter display.

㊵ IN button

Press this button and the ENTRY button ㊶ simultaneously to enter the IN point. Press this button after entering the IN point to display the data of the IN point on the time counter display.

㊶ ENTRY button

Press this button and the IN ㊵ or OUT ㊴ button simultaneously to enter the IN or OUT point. The pressed button will light up.

㊷ REVIEW button

Press this button to review the edit-recorded picture and sound.

㊸ DOLBY NR switch

Selects the audio recording system.
ON: To record using the Dolby NR (noise reduction) system.
OFF: To record without the Dolby NR system.
The setting is effective for recording only.
To open the control panel, see page 1-12 "Control panel positioning."

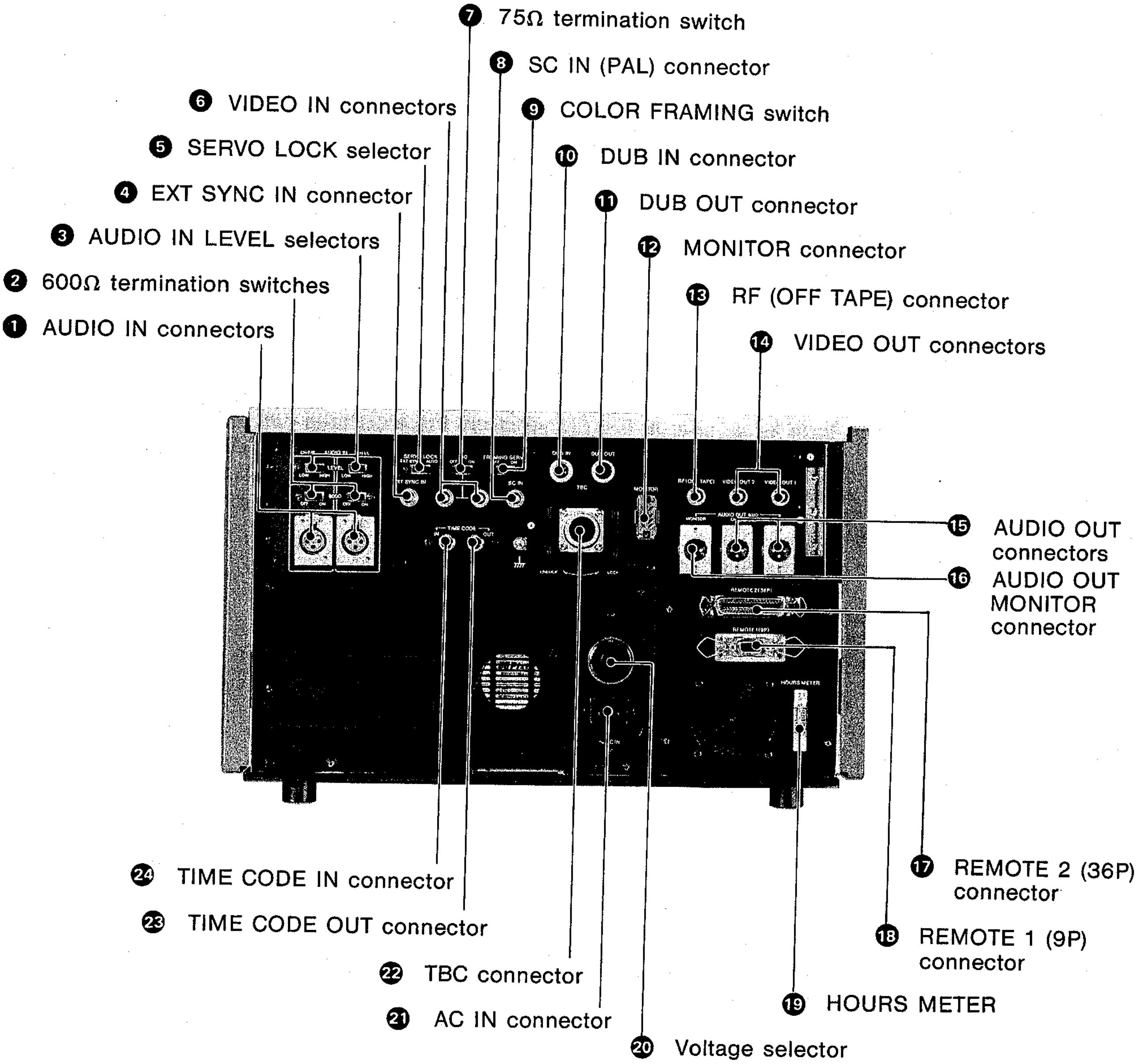
㊹ PREVIEW button

After entering the edit points, press this button for an edit-recording rehearsal. The tapes run in the same manner as in the actual edit recording so that the editing results can be monitored on the recorder's monitor without actually being recorded. If the IN point has not been entered, the preview will be performed from the point where this button has been pressed to the OUT point, and that point will be entered as the IN point.

㊺ AUTO EDIT button

After entering the edit points, press this button to perform the automatic edit recording. If the IN point has not been entered, the automatic edit recording will be performed from the point where this button has been pressed to the OUT point.

1-2-2. Connector Panel



❼ 75Ω termination switch
❽ SC IN (PAL) connector
❻ VIDEO IN connectors
❾ COLOR FRAMING switch
❺ SERVO LOCK selector
❿ DUB IN connector
❹ EXT SYNC IN connector
⓫ DUB OUT connector
❸ AUDIO IN LEVEL selectors
⓬ MONITOR connector
❷ 600Ω termination switches
⓭ RF (OFF TAPE) connector
❶ AUDIO IN connectors
⓮ VIDEO OUT connectors
⓯ AUDIO OUT connectors
⓰ AUDIO OUT MONITOR connector
⓱ REMOTE 2 (36P) connector
⓲ REMOTE 1 (9P) connector
⓳ HOURS METER
⓴ Voltage selector
㉑ AC IN connector
㉒ TBC connector
㉓ TIME CODE OUT connector
㉔ TIME CODE IN connector

① AUDIO IN connectors (XLR 3-pin)
Connect audio signals from microphones or audio equipment.

② 600Ω termination switches
Selects the input impedance when the AUDIO IN LEVEL selectors ③ are set to HIGH.
ON: 600 ohms
OFF: 10k ohms

③ AUDIO IN (input) LEVEL selectors
Set to the appropriate position according to the input level of the audio signal connected to the AUDIO IN connectors ①.
LOW: −60 dB (for microphone input)
HIGH: +4 dB (for line input)

④ EXT SYNC IN (external sync input) connector (BNC type)
Accepts the external sync signal (0.2 – 5 Vp-p) or a video signal (1 Vp-p).

⑤ SERVO LOCK selector
Selects the reference signal.
AUTO: Normally, set the switch to this position. During recording, the video signal from the VIDEO IN or DUB IN connector is selected as the reference signal. During playback, the signal will be selected as shown in the table in "To select the reference signal".
EXT SYNC: Sets the unit to be driven by the external sync signal, regardless of the position of the MODE SELECT switch on the front panel.

⑥ VIDEO IN (input) connectors (BNC type)
Connect a composite video signal.
A bridge connection can be made. When both connectors are used for bridge connection, be sure to set the 75Ω termination switch ⑦ to OFF.

⑦ 75Ω termination switch
This is the termination switch of the VIDEO IN connectors ⑥.
ON: When either of the connectors is used.
OFF: When both connectors are used for bridge connection.

⑧ SC IN (subcarrier input) connector (BNC type)
Accepts an external subcarrier frequency (4.43 MHz) to drive the playback chrominance signal.
Connect to a time base corrector.

⑨ COLOR FRAMING switch
This switch is only effective in the auto edit-record mode.
ON: Normally, set to this position. The color framing circuit is activated when the signal is connected to the EXT SYNC IN connector ④ or to the VIDEO IN connector ⑥.

- The preroll time should be set to 10 seconds if the color framing circuit is activated.

OFF: The color framing circuit is not activated.

- During editing with the BVT-500P, the color framing circuit cannot be activated when the DUB IN connector on the recorder and the DUB OUT connector on the BVT-500P are connected. Connect the VIDEO IN connector on the recorder to the VIDEO OUT connector on the BVT-500P.

⑩ DUB IN (input) connector (7-pin)
Accepts the dubbing video signal for a U-matic VTR. Connect to the DUB OUT connector of the U-matic VTR using the supplied 7-pin dubbing cable.

⑪ DUB OUT (output) connector (7-pin)
Supplies the dubbing video signal for a U-matic VTR. Connect to the DUB IN connector of the U-matic VTR using the supplied 7-pin dubbing cable.

⑫ MONITOR connector (8-pin)
Connect to the VTR connector (8-pin) on a video monitor with a monitor connecting cable (optional). The video and audio signals for monitoring are simultaneously connected. The audio signal selected by the AUDIO MONITOR selector ⑱ and the MIXING SELECT switch ⑫ on the control panel is output.

⑬ RF (OFF TAPE) connector (BNC type)
Feeds out the undemodulated FM signal. An external dropout compensator (DOC) can be connected when the built-in DOC is not being used.

⑭ VIDEO OUT (output) connectors (BNC type)
Supplies the composite video signal.
Connect to the video input connector on a VTR or a video monitor.

⑮ AUDIO OUT connectors (XLR 3-pin)
Supplies the audio signals. The output level is controlled by the AUDIO LEVEL PB controls ⑭ on the control panel.
Connect to the audio input connectors on another VTR.

⑯ AUDIO OUT MONITOR connector (XLR 3-pin)
Connects to audio equipment to monitor audio. Supplies the audio signal selected by the AUDIO MONITOR selector ⑱ and the MIXING SELECT switch ⑫ on the control panel.

⑰ REMOTE-2 connector (36-pin)
Connects a BVE series editing control unit such as a BVE-500ACE, -1000P, -5000P, etc., with an optional 36-pin remote control cable.

⑱ REMOTE-1 connector (9-pin)
Connects another BVU-850P, or a BVE series editing control unit such as a BVE-800, with the supplied 9-pin remote control cable.

⑲ HOURS METER
This meter shows the total tape running time in which the unit is in the record, playback, editing, search, fast forward or rewind mode up to a maximum of 1,000 hours.

⑳ Voltage selector
Adjustable to 100, 120, 220 or 240V ac.
Set to your local power voltage.

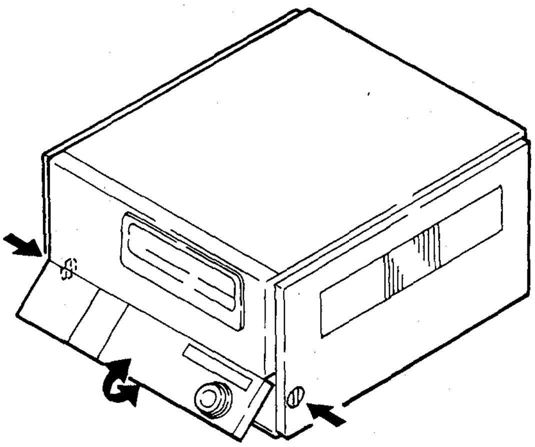
㉑ AC IN (inlet) connector
Connect to an ac power source with the supplied ac power cord.

㉒ TBC (time base corrector) connector (18-pin)
Enables time base corrector, such as a BVT-810P, to be connected.

㉓ TIME CODE OUT connector (BNC type)
Supplies the played back time code signal. Enables a time code reader to be connected. In the record or E-to-E mode, it supplies the time code signal from the TIME CODE IN connector ㉔ .

㉔ TIME CODE IN connector (BNC type)
Records the time codes on the tape track.
Connects a time code generator.

Control panel positioning



2 The control panel can be tilted in 6 steps up to 90°.

1 Loosen the stopper screws on the both sides with a coin or a large screwdriver.

3 Tighten the screws after adjustment.

- The control panel can be detached for full function remote control by cable. For details, see Section 2.

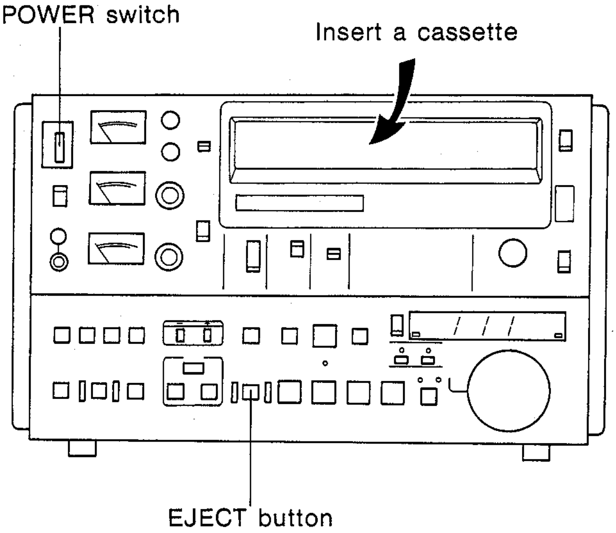
1-3. INSERTING AND REMOVING CASSETTES

Usable cassette

3/4-inch cassette, such as KCA, KCS, KSP, KSP-S or equivalent

To insert a casette

Set the POWER switch to ON and insert a cassette. The cassette is automatically pulled in, the tape will be threaded, the drum will rotate and a still picutre will be displayed.


POWER switch
Insert a cassette
EJECT button

To keep a recorded program from being accidentally erased

Remove the small round red cap on the bottom of a cassette to prevent the record function from being activated. If you wish to record on a cassette which has had the cap removed, replace the cap. This cap is normally always in place.

- The illustration below shows the tape pattern recorded by this machine with the time code generator.

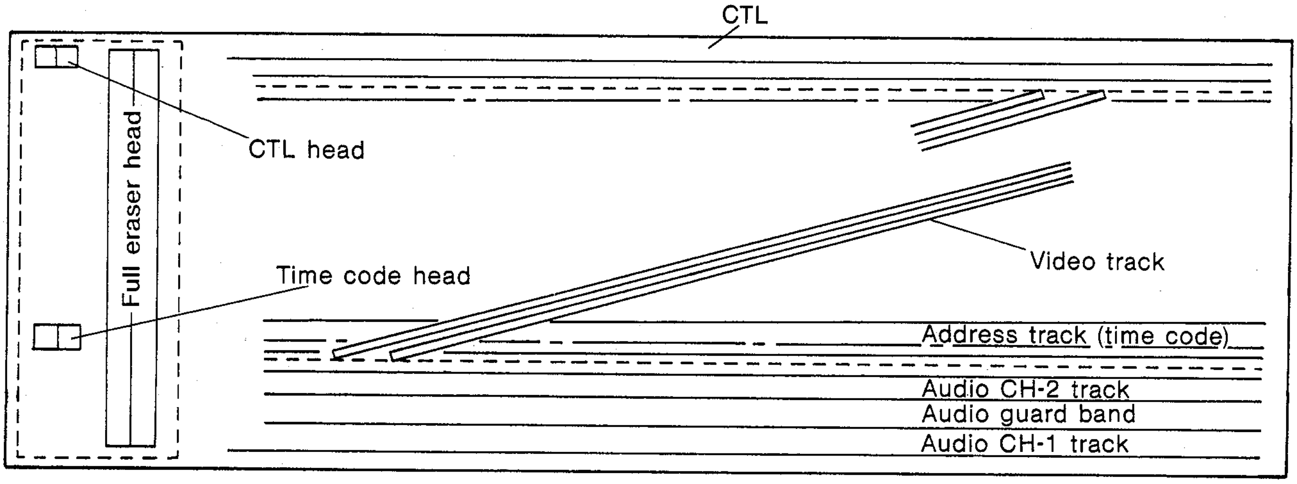
To remove a cassette

Press the EJECT button while the power is on. The tape will be unthreaded, and the cassette will be automatically ejected.

- Be sure to eject the cassette after every use.

Note

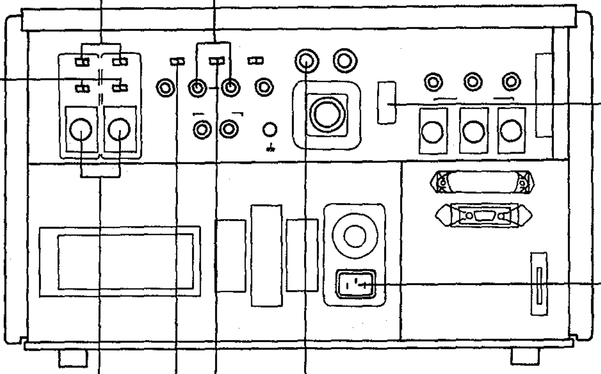
When an overwound tape is threaded, the machine automatically goes into fast forward or rewind mode to prevent accidental head tip damage to the leader. If a KCA cassette, in which the leader strip of the tape end has accidentally been drawn out, is inserted, the cassette will be automatically ejected. In this case, turn the supply reel by hand until the end-leader strip is wound onto the supply reel and re-insert the cassette.


CTL
CTL head
Full eraser head
Time code head
Video track
Address track (time code)
Audio CH-2 track
Audio guard band
Audio CH-1 track

1-4. RECORDING

1-4-1. Preparation

Rear panel



AUDIO IN LEVEL selectors: LOW or HIGH
For microphone input, set to LOW.
For line input, set to HIGH.

To record the composite video signal
Connect to VIDEO IN. (Video input from a video camera, VTR, etc.)

600Ω termination switches: ON or OFF
When the AUDIO IN LEVEL selectors are set to HIGH, set to the appropriate position.
For 600 ohm input, set to ON.
For 10 k ohm input, set to OFF.

Monitor output

AC power source

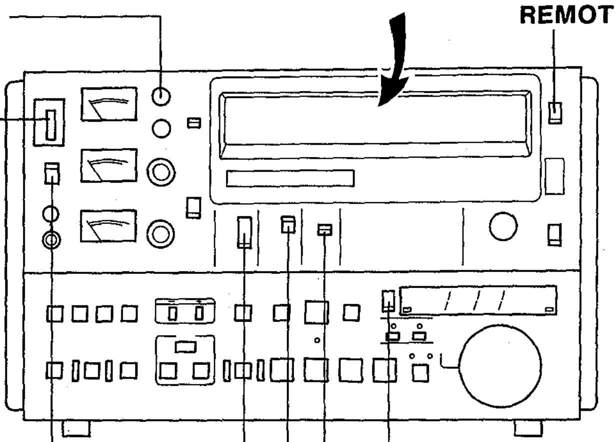
Audio input

SERVO LOCK selector: AUTO
To synchronize with an external reference signal, set to EXT.

75Ω termination switch: ON
When a looping output is employed, set to OFF.

To duplicate the dubbing video signal
Connect to DUB IN. (Video input from a U-matic VTR or a Betacam VTR)

Front panel



Insert a cassette.

TRACKING control: FIXED

REMOTE/LOCAL selector: LOCAL

POWER switch: ON

AUDIO MONITOR selector: MIX

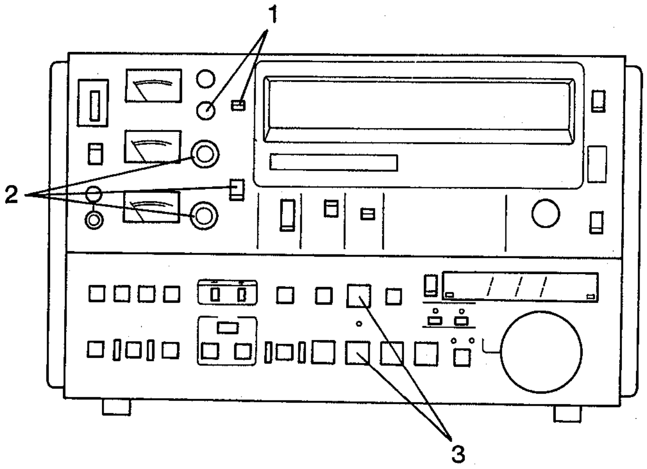
MIXING SELECT switch: OFF

MODE SELECT switch: NORMAL

PB.PB/EE selector: PB/EE

INPUT SELECT switch: LINE or DUB
For the composite video signal connected to the VIDEO IN connectors, set to LINE.
For the dubbing video signal from the DUB IN connector, set to DUB.

1-4-2. Operation



1. Adjust the video level.
   Automatic adjustment
   Set the VIDEO LEVEL switch to AUTO. The video signal will be recorded at an appropriate level.
   Manual adjustment
   Set the VIDEO LEVEL switch to MAN, and turn the VIDEO LEVEL control so that the video input signal is adjusted to the appropriate level while watching the waveform monitor.
2. Adjust the audio recording level.
   Set the AUDIO LIMITER switch to OFF. Adjust the AUDIO LEVEL controls for channels 1 and 2 so that the pointers of the AUDIO LEVEL meters read approximately zero at the maximum deflection.
   Audio recording with the limiter
   After completing the adjustment above, set the AUDIO LIMITER switch to ON.
3. Press the PLAY and REC buttons simultaneously. The recording will start and the REC and PLAY buttons will light. When the servo is locked, the SERVO lamp will light. (It takes a few seconds for the drum and capstan servo to lock, and that portion of the playback picture may be distorted.)

To stop recording

Press the STOP button.

Recording stops and the STOP button lights.

- If the tape reaches the end, it will automatically rewind to the beginning and stop.

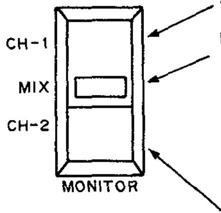
To monitor video and audio signals

The picture and sound on the video monitor can be selected by the PB.PB/EE selector, playback video and audio signal (PB) or input video and audio signal in the E-to-E mode (EE).

Mode / Selector position	Cassette up	Threading or unthreading	Fast forward or rewind	Stop	When the standby mode is turned off
PB/EE	EE	EE	EE	EE	EE
PB	EE	EE	PB	PB	PB

The audio channel to be monitored can be selected by the AUDIO MONITOR selector.

AUDIO MONITOR



Audio channel 1

Both channels from the HEADPHONES jack and mixed sound of both channels from the AUDIO OUT MONITOR connector and MONITOR connector.

Audio channel 2

To select the reference signal

The reference signal for the servo lock is determined by setting the MODE SELECT switch and the SERVO LOCK selector.

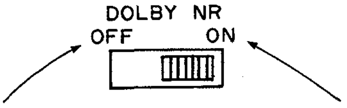
SERVO LOCK selector position		AUTO			EXT SYNC	
VTR operating mode		Recording	Playback, E-E		Recording	Playback, E-E
MODE SELECT switch position		EDIT, NORMAL, TBC	EDIT	NORMAL TBC	EDIT, NORMAL, TBC	
Input signal to						
VIDEO IN or DUB IN	EXT SYNC IN					
Yes	Yes	VIDEO	VIDEO (EXT SYNC)*	EXT SYNC IN (VIDEO)**	EXT SYNC IN	
Yes	No	VIDEO	VIDEO (Internal sync signal)*		VIDEO	VIDEO (Internal sync signal)*
No	Yes		EXT SYNC IN			
No	No		Internal sync signal			

* When the player is in a mode other than playback during editing using the BVE-500, BVE-500ACE, BVE-800 or two BVU-850Ps, the recorder's servo reference signal is as indicated in parentheses.

** The recorder's reference signal will be VIDEO when one of the ASSEMBLE or INSERT buttons is pressed (the button is lit), and when the VTR is in the PLAY mode or the EDIT button is lit.

To record with the Dolby NR system

The audio signals can be recorded with or without the Dolby NR (noise reduction) system by setting the DOLBY NR switch.



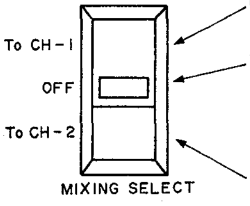
The Dolby NR system is deactivated.

The Dolby NR system is activated.

When this switch is set to ON, low-level high-frequency signals which tend to be obscured by tape hiss, are boosted so that they are substantially higher in level than any tape noise. When these signals are played back, the level is lowered to the original input level, while simultaneoulsy the level of any tape noise is reduced to the same extent.The Dolby NR system is actuated for both channels 1 and 2 simultaneously. To activate the Dolby NR system for channel 1 or 2 independently, refer to Section 2.

To record mixed sound from channels 1 and 2

Audio signals from channel 1 and channel 2 can be mixed during recording. It is also possible to record the mixed signal on either channel 1 or channel 2 by setting the MIXING SELECT switch as follows:

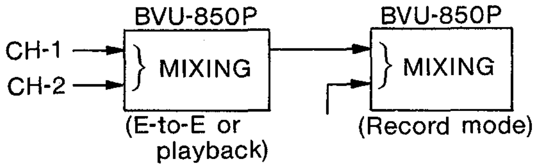


The mixed signal will be recorded on channel 1. (The audio signal on channel 2 will be recorded on channel 2.)

The audio signal of channel 1 and channel 2 will be recorded on the respective channels.

The mixed signal will be recorded on channel 2. (The audio signal on channel 1 will be recorded on channel 1.)

- The mixed audio input signals of channels 1 and 2 will be mixed recorded at the same level.
- When two BVU-850Ps are connected, three of audio signals can be mixed.



To protect tapes

If the unit stays in the stop mode for more than 8 minutes, the unit will automatically turn off the standby mode (the drum stops rotating) to protect the tape and the video heads. If the tape is stopped in the search mode for more than 8 minutes, the tape will advance at 1/30 normal speed. To set the unit in the desired mode (except the stop mode) press the appropriate button. To set the unit in the stop mode, press the STANDBY button.

Moisture condensation

If moisture has condensed, the drum and the capstan motors stop and the cassette will be ejected. The AUTO OFF indicator ❻ on the front panel will light. Then the drum will begin rotating. To operate the unit, wait until the AUTO OFF indicator will turn off and about 10 minutes will have passed.

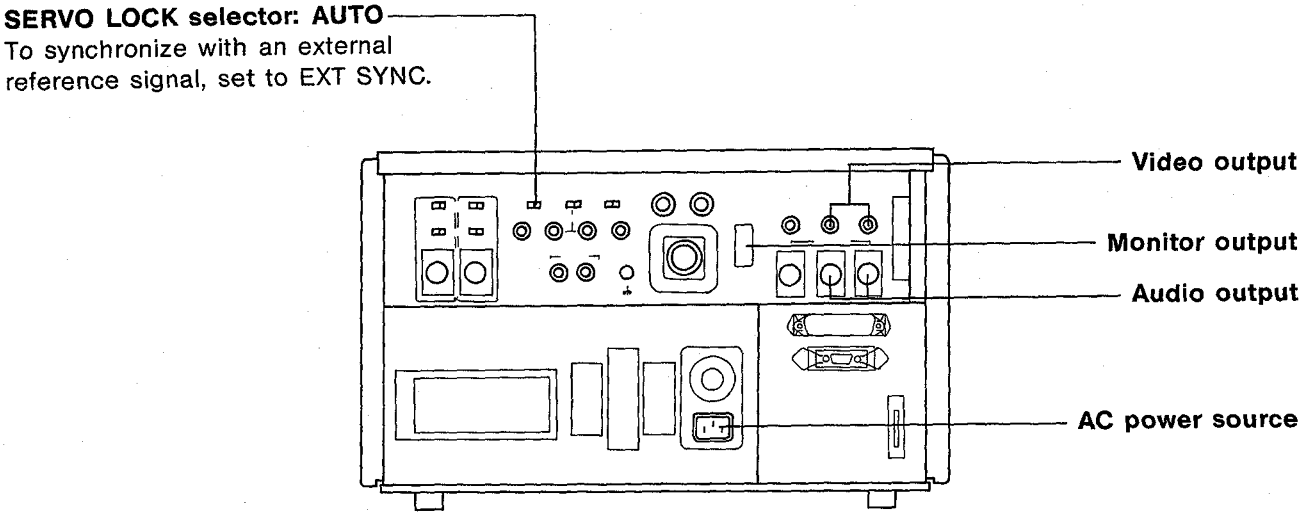
To record the time code from an external time code generator

To simultaneously record the time code, connect an EBU time code generator to the TIME CODE IN connector. No level adjustment is necessary as the time code is automatically recorded with the limiter. The TIME CODE lamp lights during recording.

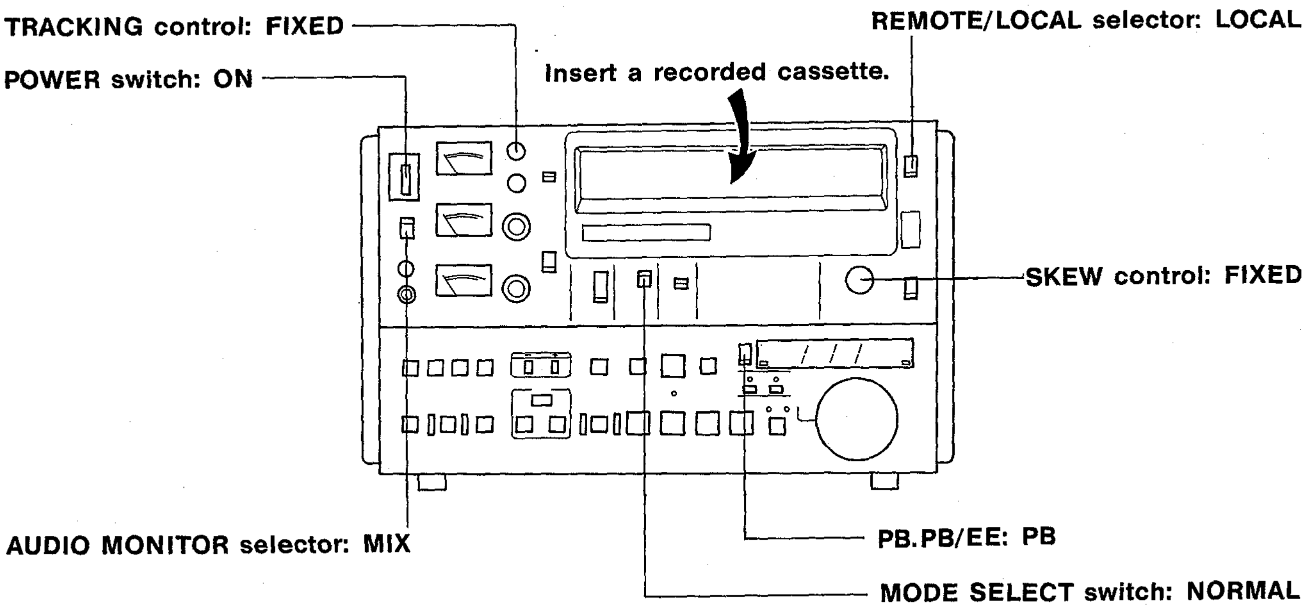
1-5. PLAYBACK

1-5-1. Preparation

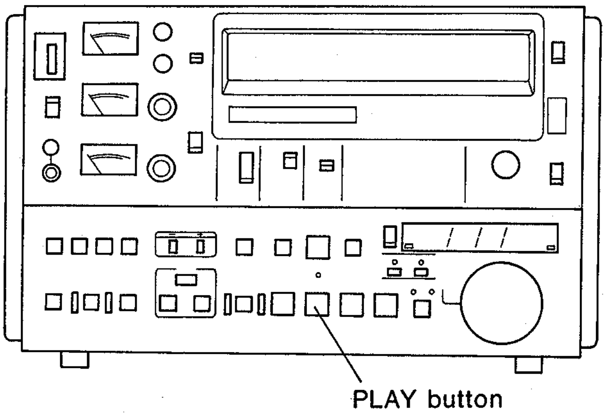
Rear panel


SERVO LOCK selector: AUTO
To synchronize with an external reference signal, set to EXT SYNC.
Video output
Monitor output
Audio output
AC power source

Front panel


TRACKING control: FIXED
POWER switch: ON
Insert a recorded cassette.
REMOTE/LOCAL selector: LOCAL
SKEW control: FIXED
AUDIO MONITOR selector: MIX
PB.PB/EE: PB
MODE SELECT switch: NORMAL

1-5-2. Operation


PLAY button

Press the PLAY button.
The playback will start.
The capstan servo will be locked in a few seconds and the SERVO lamp will light. The playback picture may be distorted until the servo is locked.
During playback, the PLAY button and the SERVO lamp light.

To stop playback
Press the STOP button.
The playback will stop and the STOP button will light.

To adjust tracking and skew
Normally, both controls should be at the FIXED position.
If a noise appears on the playback picture, turn the TRACKING control so that the pointer of the VIDEO/RF meter points as far to the right as possible.
If the top of the picture is distorted, turn the SKEW control to the position which gives the best possible picture.

Note
After playing back a tape, always return the TRACKING control to the FIXED position.
The SKEW control automatically returns to the FIXED position during recording.

To adjust the audio playback level
Turn the AUDIO LEVEL controls for channels 1 and 2 so that the pointers of the VU meters read approximately zero at the maximum deflection.
The video level is automatically adjusted.

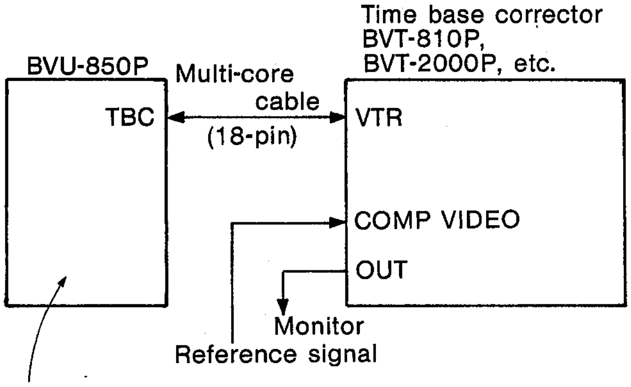
Dolby auto detector
When the Dolby recorded tape is played back, the Dolby NR system is automatically activated without regard to the DOLBY NR switch setting.
When only one channel is recorded with the Dolby NR system, both channels are played back with the Dolby NR system ON.
To activate the Dolby NR system for channel 1 or 2 independently, refer to Section 2.

Time code playback
When playing back tape on which a time code has been recorded, the time code signal will be supplied from the TIME CODE OUT connector on the connector panel.
For reading out the time code, connect an EBU time code reader to the TIME CODE OUT connector.
During playback, the TIME CODE indicator ❻ lights.

To monitor playback video and audio
To monitor playback video and audio signals, use the same method as in recording. See page 1-16.

Playback with a time base corrector

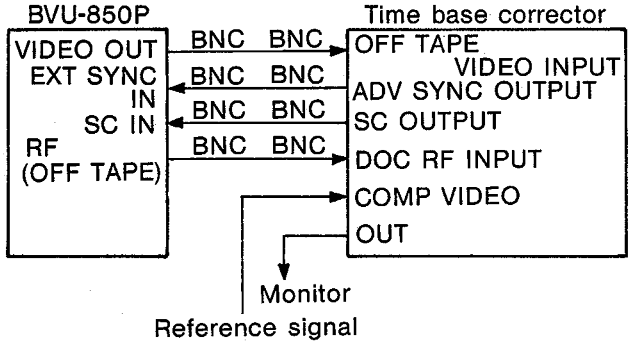
- Connection with other time base correctors which are equipped with VTR connector (18-pin).


BVU-850P
TBC
Multi-core cable (18-pin)
Time base corrector BVT-810P, BVT-2000P, etc.
VTR
COMP VIDEO
OUT
Monitor
Reference signal

Set the MODE SELECT switch on the front panel to TBC.

Note
Make sure that no line is connected to the DUB connectors.

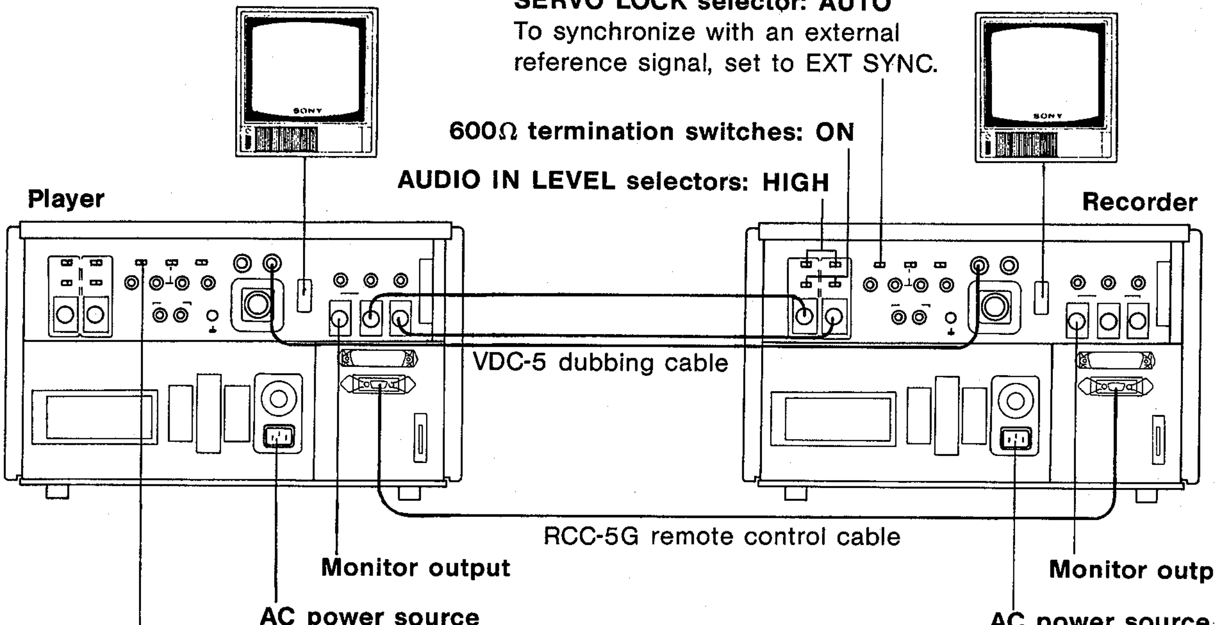
- Connection with other time base correctors which are not equipped with VTR connector (18-pin).


BVU-850P
VIDEO OUT
EXT SYNC IN
SC IN
RF (OFF TAPE)
BNC BNC
BNC BNC
BNC BNC
BNC BNC
Time base corrector
OFF TAPE VIDEO INPUT
ADV SYNC OUTPUT
SC OUTPUT
DOC RF INPUT
COMP VIDEO
OUT
Monitor
Reference signal

1-6. EDITING

1-6-1. Preparation

Rear panel



SERVO LOCK selector: AUTO
To synchronize with an external reference signal, set to EXT SYNC.

600Ω termination switches: ON

AUDIO IN LEVEL selectors: HIGH

Monitor output

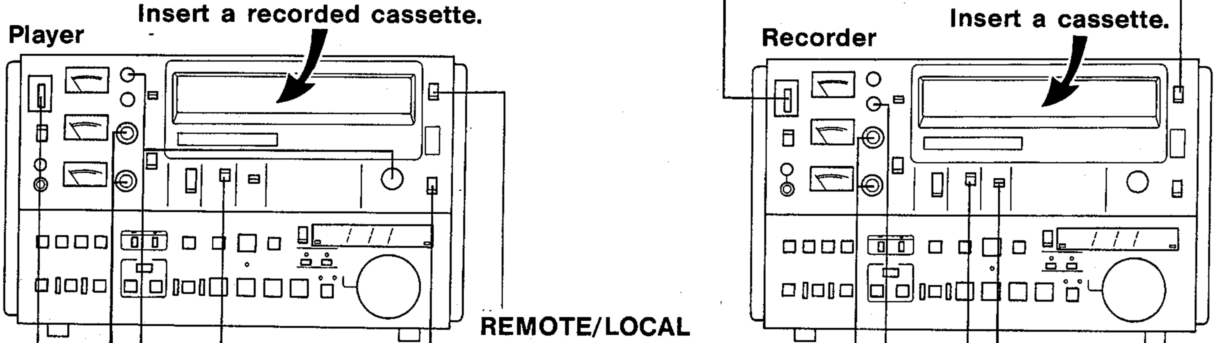
AC power source

Monitor output

AC power source

SERVO LOCK selector: AUTO
To synchronize with an external reference signal, for example, to synchronize with the standard reference signal in studio, set to EXT.

Front panel



Insert a recorded cassette.

POWER switch: ON

REMOTE/LOCAL selector: LOCAL
The buttons on the control panel of the recorder control both the player and the recorder.

Insert a cassette.

REMOTE/LOCAL selector: REMOTE
The buttons on the control panel of the player do not function.

REMOTE-1/REMOTE-2 selector: REMOTE-1

MODE SELECT switch: EDIT

Adjust tracking and skew, if necessary. (See page 1-19.)

Adjust the audio playback level. (See page 1-19.)

POWER switch: ON

INPUT SELECT switch: DUB
When the video signal is connected to the VIDEO IN connector, set to LINE.

MODE SELECT switch: EDIT

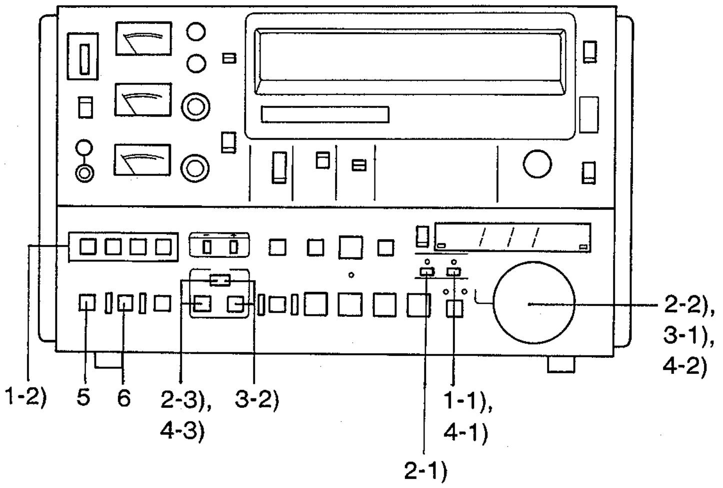
Adjust the video recording level. (See page 1-15.)

Adjust the audio recording level. (See page 1-15.)

For the settings of the other switches, see page 1-18.

For the settings of the other switches, see page 1-14.

1-6-2. Operation



1. Select the editing mode.

   Assembly editing

   1) Press the RECORDER button. The RECORDER lamp will light.
   2) Press the ASSEMBLE button. The ASSEMBLE button will light.

   Insert editing

   1) Press the RECORDER button. The RECORDER lamp will light.
   2) Press any or all of the INSERT buttons whose signals you want to insert and the pressed button(s) will light.

To release the selected mode
Press the same button again.

2. Determine the IN point of the player.
   1) Press the PLAYER button.
      The PLAYER lamp will light, and the IN and OUT buttons will start blinking slowly.
   2) Search for the IN point with search dial.
   3) Press the ENTRY and IN buttons simultaneously.
      The IN button will light and the digits displayed on the time counter display will be entered as the IN point.

Note
The first IN point should be at least 10 seconds after the recording start point on the tape.

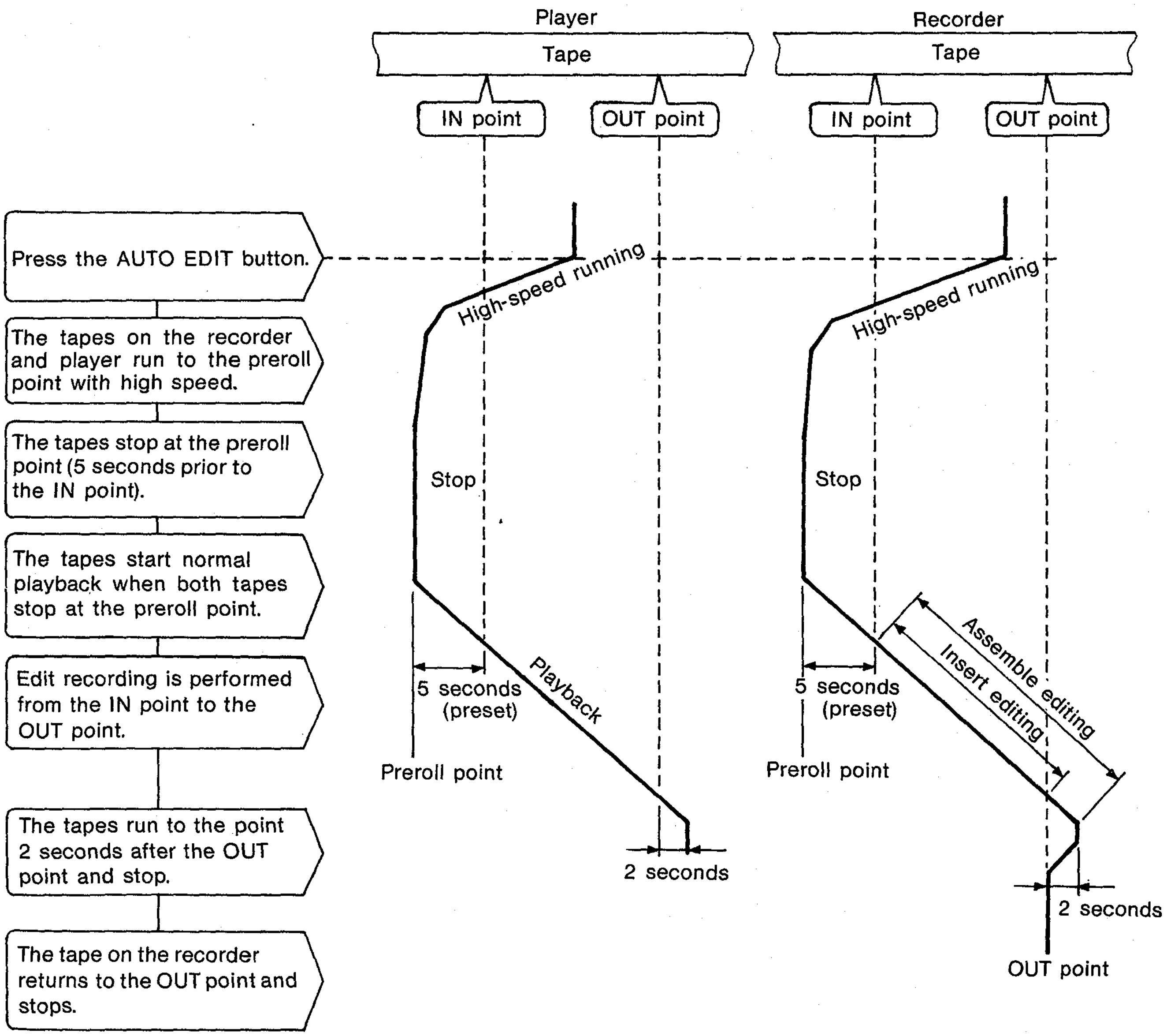
3. Determine the OUT point of the player.
   1) Search for the OUT point with the search dial.
   2) Press the ENTRY and OUT buttons simultaneously.
      The OUT button will light and the digits displayed on the time counter display will be entered as the edit-out point.

Note
The OUT point should be placed after the IN point. If the OUT point is placed before the IN point, the entered IN point is erased and the automatic editing will not be performed correctly.

4. Determine the IN point of the recorder.
   1) Press the RECORDER button.
      The RECORDER lamp will light, and the IN button starts blinking slowly.
   2) Search for the IN point with the search dial.
   3) Press the ENTRY and IN buttons simultaneously.
      The IN button will light and the digits displayed in the time counter display will be entered as the IN point.
      When the OUT point has been entered on the player, the entry of the OUT point on the recorder is not necessary.

5. Press the PREVIEW button if you want to rehearse the editing.
   The PREVIEW button will light, and the rehearsal of editing can be performed. Observe the recorder's monitor: the picture from the player will be displayed in the E-to-E mode between the IN and OUT points.
   If necessary, trim the edit points and press the PREVIEW button again.
   To stop the tape during previewing
   Press the STOP button. Press the PREROLL button to rewind the tape to the preroll point.
   To start auto editing during previewing
   Press the AUTO EDIT button.
   The tape will rewind to the preroll point and the edit recording will begin.

6. After deciding the edit points, press the AUTO EDIT button.
   The edit recording will be performed as shown below.



Press the AUTO EDIT button.

The tapes on the recorder and player run to the preroll point with high speed.

The tapes stop at the preroll point (5 seconds prior to the IN point).

The tapes start normal playback when both tapes stop at the preroll point.

Edit recording is performed from the IN point to the OUT point.

The tapes run to the point 2 seconds after the OUT point and stop.

The tape on the recorder returns to the OUT point and stops.

Player
Tape
IN point
OUT point
Recorder
Tape
IN point
OUT point
High-speed running
High-speed running
Stop
Stop
Playback
Assemble editing
Insert editing
5 seconds (preset)
5 seconds (preset)
Preroll point
Preroll point
2 seconds
2 seconds
OUT point

To review the editing result
After edit recording, press the REVIEW button to display the editing result on the recorder's monitor. The tape stops at the OUT point.
To stop the review, press the STOP button.

To monitor the edit recording
You can monitor the recording from 10 seconds prior to the IN point to 2 seconds after the OUT point on the recorder's monitor. In insert editing, if some CTL signals are missed on the tape on the recorder, the playback picture of the recorder will appear on the monitor indicating that the edit recording has not been made at that portion.

To stop edit recording
To stop edit recording before the OUT point, press the OUT and ENTRY buttons simultaneously.

When the edit recording is finished
When the edit recording of one scene is finished, search for and enter the IN and OUT points for the next scene, as described on the previous pages. You can make the OUT point of one scene as the next IN point for the recorder.

To search for and fix an edit point

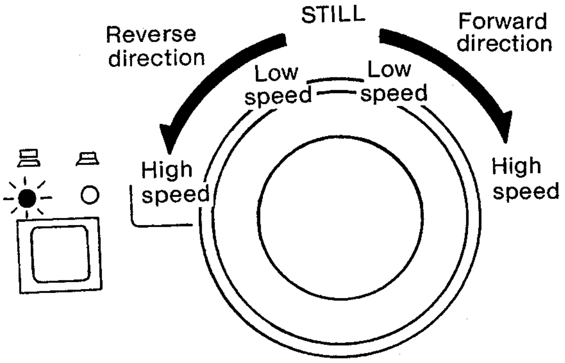
Play back the inserted KSP tapes before setting the unit in the search mode. Otherwise, the SP/conventional mode circuit may not properly function.

Turn the search dial to the right or left to search for an editing point. When the RECORDER lamp lights, the point on the recorder will be searched for, and when the PLAYER lamp lights, the point on the player will be searched for. Decide the editing point by monitoring the picture on each monitor. If the SHUTTLE lamp is not lit, press the search dial in.

1. Set the VTR in the shuttle mode (the SHUTTLE lamp is lit), and search for the desired point by turning the search dial.
   When the dial is turned beyond the click position, 10 times the normal playback speed can be obtained. When the VTR enters the 10 times normal speed playback, the picture stops or may be temporarily distorted.

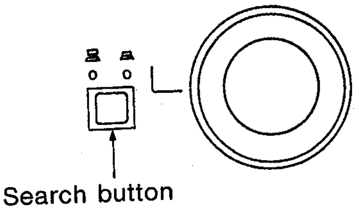
Note

After the power is turned on, be sure to set the dial to the center position.



2. Press the dial in to set the VTR in the jog mode (the JOG lamp will light).
3. Turn the dial. The playback speed depends on the turned. Decide the editing point precisely.

How to use a search button



Simply turn the search dial to enter the search mode. Pressing the search button is not necessarily required. Turn the search dial under the following circumstances.

To start playback at a desired speed

1. Turn the search dial in the shuttle mode and set it at the desired playback speed.
2. Press the PLAY button.
3. Press the search button, and playback will begin at the speed set in step 1.

To prevent accidental entry into the search mode

The search dial can be set to be activated only when the search button is pressed to prevent the VTR from accidentally entering the search mode. (For details, refer to Section 2.)

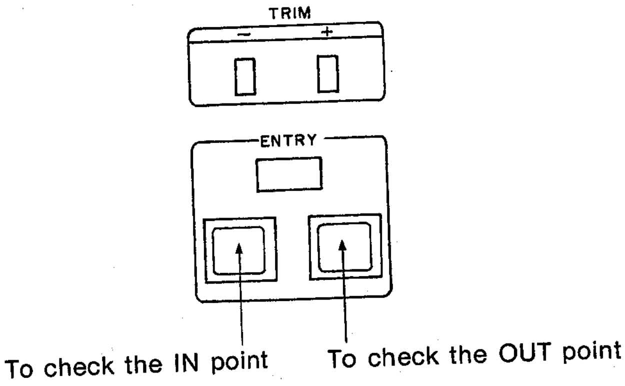
To check the IN and OUT points

The entered IN and OUT points are displayed on the time counter display.

To check the IN and OUT points on the player

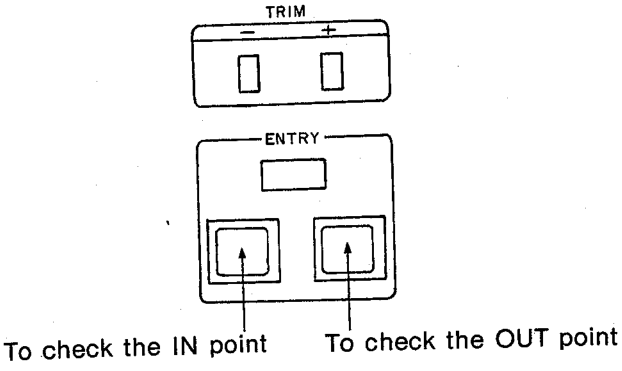
Press the PLAYER button, and then the IN or OUT button and hold it down.

The IN or OUT point will be displayed while the corresponding button is pressed.



To check the IN and OUT points on the recorder

Press the RECORDER button. Then press the IN or OUT button and hold it down. The IN or OUT point will be displayed while the corresponding button is pressed.



To trim the editing point

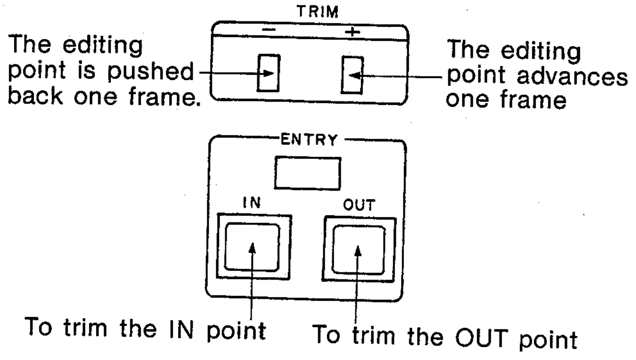
There are two methods to trim the entered editing point: trimming the point by one frame or entering a new editing point.

To trim frame by frame

The IN and OUT points can be trimmed by one frame.

1. Press the IN or OUT button to display the point to be trimmed on the time counter display.

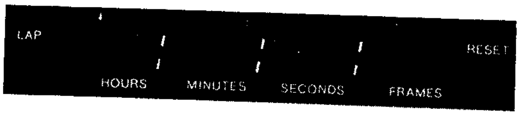
2. While pressing the IN or OUT button, press the TRIM + or TRIM − button.
   Every time the TRIM + button is pressed, the editing point advances one frame and every time the TRIM − button is pressed, the editing point is pushed back one frame.


TRIM
−
+
The editing point is pushed back one frame.
The editing point advances one frame
ENTRY
IN
OUT
To trim the IN point
To trim the OUT point

To enter a new editing point

Search for the new editing point and press the ENTRY button and the IN or OUT button simultaneously. The new point will be entered as the IN or OUT point and the previous point will be erased.

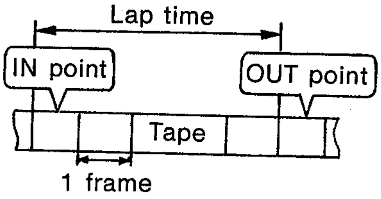
Time counter display



The time counter display shows the tape running time with the normal playback speed. When the RESET button is pressed, the display shows "0:00:00:00". When the tape runs in the reverse direction from "0:00:00:00", a minus sign "—" will be displayed to the left of the digits. The time counter counts the CTL signals recorded on the tape.
Therefore, if the tape lacks the CTL signals, the digits on the display will not indicate the correct time. If fast forward or rewind is repeated several times, correct indication of time is impossible. When a new tape is played back, the digits will not change because the CTL signals have not been recorded.
When the RECORDER lamp is lit, the tape position on the recorder is displayed. When the PLAYER lamp is lit, the tape position on the player is displayed.
When the IN or OUT button is pressed after entering the IN and OUT points, the IN or OUT point will be displayed.
When the RESET button is pressed after entering the editing point, the entered points will be erased. Never press the RESET button before edit recording is complete.

To display lap time

When the LAP button is pressed after entering the IN and OUT points, the lap time (duration between the IN and OUT points) will be displayed on the time counter display as long as the button is pressed. When the RECORDER lamp is lit, the lap time on the recorder is displayed. When the PLAYER lamp is lit, the lap time on the player is displayed. When the OUT point is entered on the player, the lap time will be transferred to the recorder after the preview or auto editing is performed.



If the LAP button is pressed without entering the editing point, the following lap times will be displayed. When neither of the IN and OUT points have been entered, the lap time of the previous editing will be displayed. When only the IN point has been entered, the period from the IN point to the present tape position will be displayed. When only the OUT point has been entered the lap time of the previous editing will be displayed.

Blinking lamps

Press the following buttons whose lamps are blinking, and the editing can be completed. The blinking and lighting of lamps are as follows.

- The ASSEMBLE and INSERT (VIDEO, AUDIO CH-1, AUDIO CH-2) lamps blink to indicate that the editing mode must be determined by pressing the appropriate button.
  The pressed buttons stop blinking, but stay lit to indicate that the editing mode has been determined.
- The IN and/or OUT lamp(s) for the player and recoder blink to indicate that the editing point(s) must be entered.
  The IN and OUT lamps stop blinking, but stay lit when the IN and OUT points have been entered, and when editing has not yet been performed.
- The PREVIEW and AUTO EDIT lamps blink to indicate that you can proceed either to the preview or the auto edit operation.
  The PREVIEW or AUTO EDIT lamp stops blinking, but stays lit to indicate that the recorder is in one of these modes.

To change the preroll time

The preroll time is set to 10 seconds, but can be changed to 5 seconds.
When the preroll time is changed, the recording period of the CTL signals before the IN point or the period between the record-start point and the first IN point should be changed according to the new preroll time. The preroll time set on the recorder will be selected for both the player and recorder. For details, see Section 2. If the color framing mechanism is to be activated, the preroll time should be set to 10 seconds.

1-6-3. Parallel Operation of Player and Recorder

Search, entry, playback, fast forward, or rewind can be controlled by the player or recorder while the other is being used. This significantly reduces the time required for editings.

Method 1
Set the remote selector on the player to LOCAL so that the control panel on the recorder and player will contol each machine.

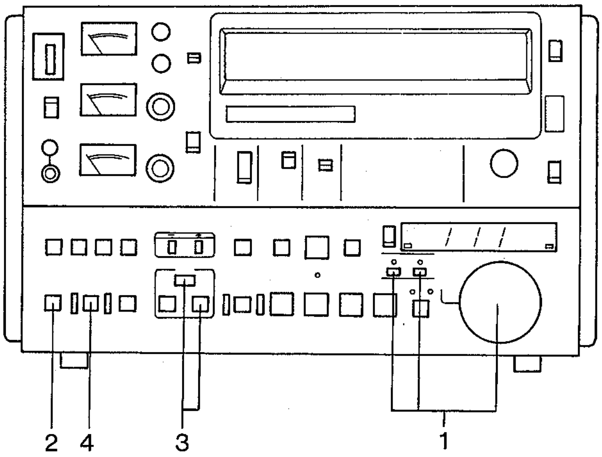
Method 2
Set the remote selector on the player to REMOTE (and to REMOTE 1), and use the control panel on the recorder as follows.

1. Press the RECORDER button. The RECORDER lamp will light. Operate the recorder with the buttons on the control panel.
2. Press the PLAYER button. The PLAYER lamp will light and the following buttons will control the player. The time counter display shows the tape portion on the player.
   Search dial, search button, PREROLL, PLAY, F FWD, REW, STOP, STANDBY, EJECT, ENTRY IN, ENTRY OUT, TRIM +, TRIM −, LAP, RESET.
   The recorder keeps the operation in step 1.
3. Press the RECORDER button to control the recorder again.

- If the control panel is detached and connected with an optional BK-802 remote control cable, the recorder and player will be remotely controlled.

1-6-4. Quick Editing

You can save time by entering the IN and OUT points in the preview mode.



1. Locate the desired IN points for the player and recorder using the search dial, and stop the tape.
2. Press the PREVIEW button. The points obtained in step 1 will be memorized as the IN points for the player and recorder (the IN button will light), and the preview will start.
3. Watch the recorder's monitor and at the point where the scene is to end, press the OUT and ENTRY button simultaneously on the player or the recorder. This point will be memorized as the OUT point. The tape will run for 2 more seconds, as a post roll and will then return to the preroll points.

- You may also use the search dial to locate the OUT point accurately.
- If necessary, preview the tape again and trim the IN and/or OUT points.

4. Press the AUTO EDIT button to start the edit recording.

To edit even more quickly
Press the AUTO EDIT button in step 2 of the above procedure, and the edit recording will begin from the IN point decided in step 1.
Press the OUT and ENTRY buttons simultaneously on the player or the recorder at the point where the scene is to end, and that point will be the OUT point.

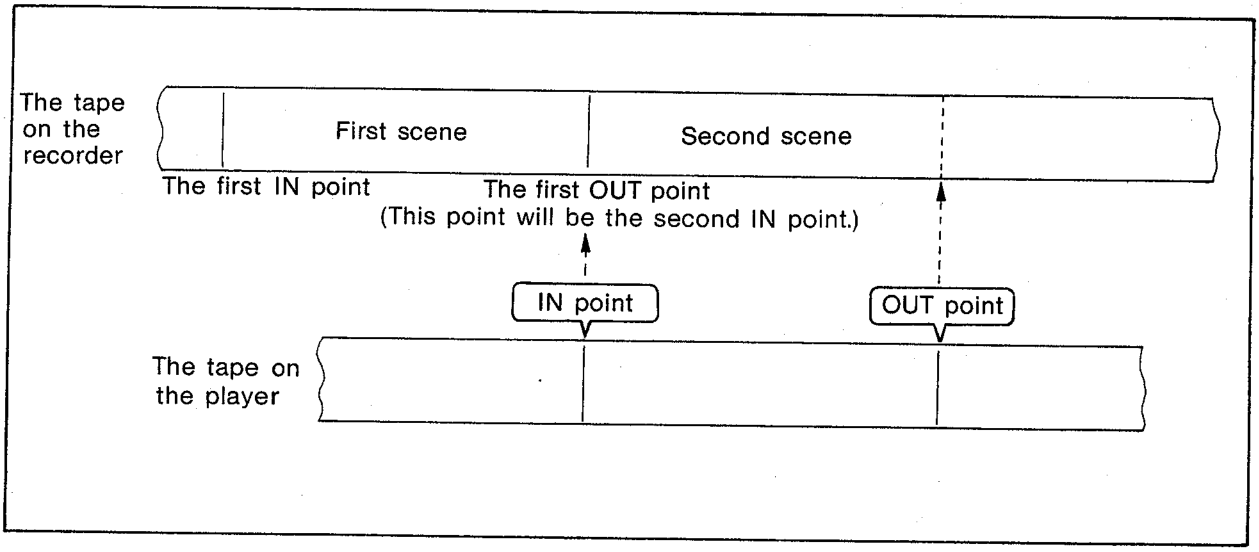
1-6-5. Continuous Editing (Butt Edit)

After recording from the IN point to the OUT point, the recorder returns to the OUT point and stops. The OUT point can be used as the next IN point for the recorder.

This technique is called "Butt edit".

1. Decide the next IN and OUT points on the player.
2. Press the AUTO EDIT button.
   Recording will be performed.

The entry of the OUT point in step 1 can be omitted. To omit the OUT point, press the OUT and ENTRY buttons simultaneously on the recorder or player to end the editing at the point where the scene is to end.



1-6-6. Split Edit

In the insert mode, edit recording of the video, audio channel 1, and audio channel 2 can be started and stopped independently.

1. Select the desired input signal with any or all of the INSERT buttons.
2. Press the AUTO EDIT button to start automatic edit recording.
3. At the point where the edit recording of the video or audio is to stop, press the appropriate INSERT button(s). The corresponding button(s) will turn off.
   At the point where the edit recording of the video or audio is to begin, press the appropriate INSERT button(s).
   The corresponding button(s) will light.
   You may cut in or cut out the desired signal(s) at any point by pressing the INSERT button(s).
   Even if all the signals are cut out, the desired signal(s) can be cut in simply by pressing the INSERT button(s).
4. When the OUT point has been entered, the recording will stop automatically.
   When the OUT point has not been entered, press the OUT and ENTRY buttons to stop edit recording.

Note

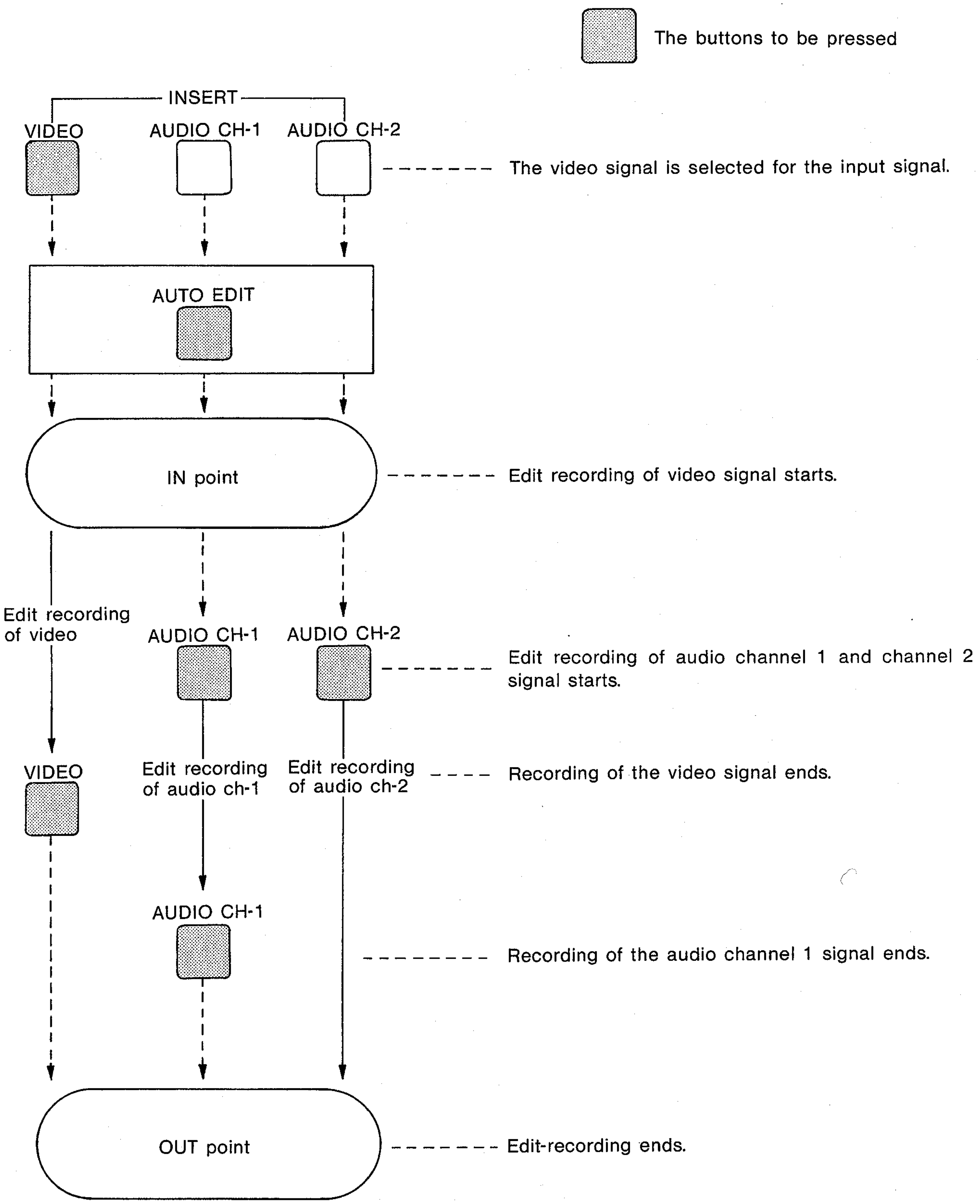
Once you stop edit recording, the video or audio signals cannot be cut in by simply pressing the INSERT buttons.

In the manual insert mode, you can split-edit in the same way.

To stop edit recording

Press the PLAY button.

Example of split edit


The buttons to be pressed
INSERT
VIDEO
AUDIO CH-1
AUDIO CH-2
AUTO EDIT
IN point
Edit recording of video
AUDIO CH-1
AUDIO CH-2
VIDEO
Edit recording of audio ch-1
Edit recording of audio ch-2
AUDIO CH-1
OUT point

The video signal is selected for the input signal.

Edit recording of video signal starts.

Edit recording of audio channel 1 and channel 2 signal starts.

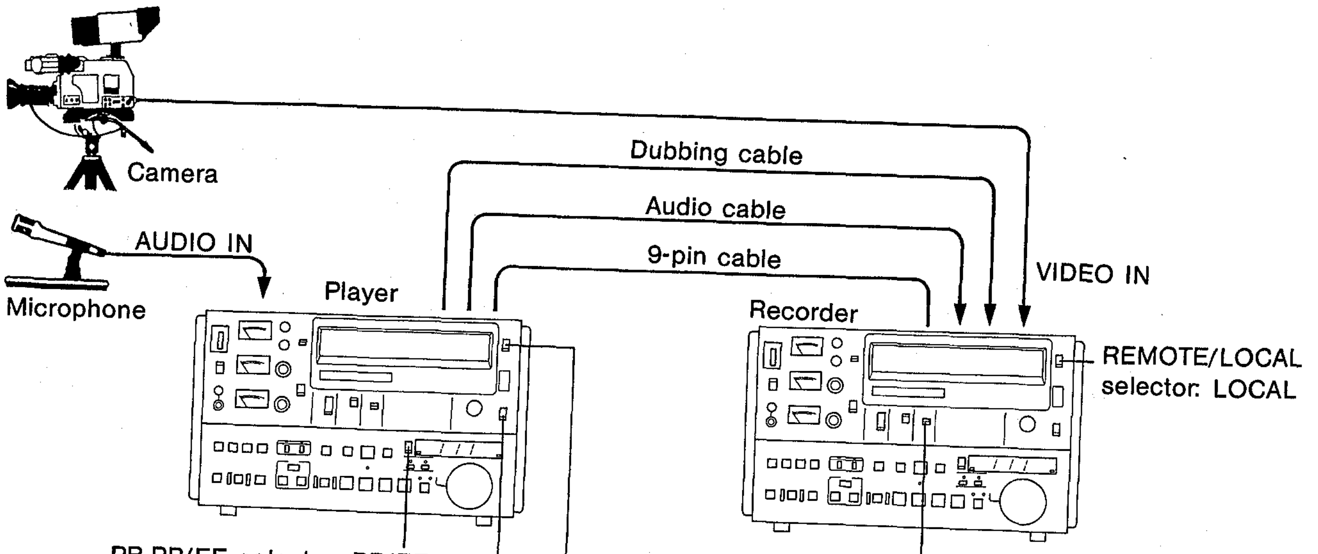
Recording of the video signal ends.

Recording of the audio channel 1 signal ends.

Edit-recording ends.

1-6-7. Editing the Camera Picture

To edit the camera picture during tape-to-tape editing


Camera
Dubbing cable
Audio cable
9-pin cable
AUDIO IN
VIDEO IN
Microphone
Player
Recorder

REMOTE/LOCAL selector: LOCAL

PB.PB/EE selector: PB/EE

REMOTE-1/REMOTE-2
selector: REMOTE-1

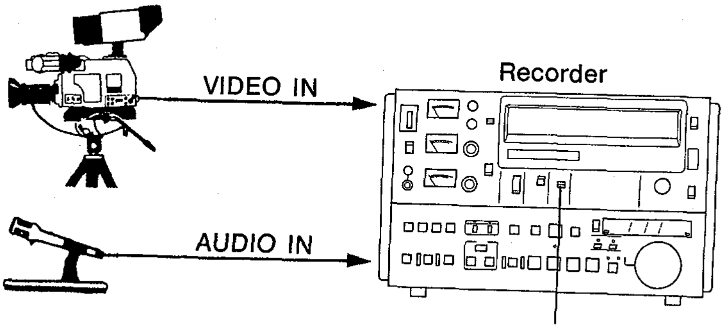
REMOTE/LOCAL selector: REMOTE
When the recorder's INPUT SELECT switch is set to LINE, set to LOCAL.

INPUT SELECT switch: DUB or LINE
To edit the signal from the player, set to DUB.
To edit the camera picture, set to LINE.

Note

To record the camera signals, set the player in the stop mode.

To edit camera picture only


VIDEO IN
Recorder
AUDIO IN

INPUT SELECT switch: LINE

Assembly editing

Enter the IN point of the recorder and press the AUTO EDIT button. The recording of the camera signal will start.

To stop recording, press the ENTRY and OUT buttons simultaneously.

Note

The OUT point cannot be entered on the recorder for assembly editing.

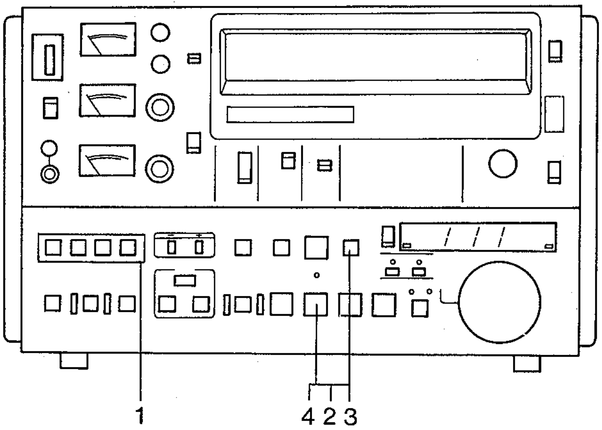
Insert editing

Enter the IN and OUT points of the recorder and press the AUTO EDIT button. The interval between the IN and OUT points will be recorded.

When the OUT point has not been entered, press the ENTRY and OUT buttons simultaneously to stop recording.

1-6-8. Manual Editing

The connections and the settings of the switches are the same as those on page 1-20.

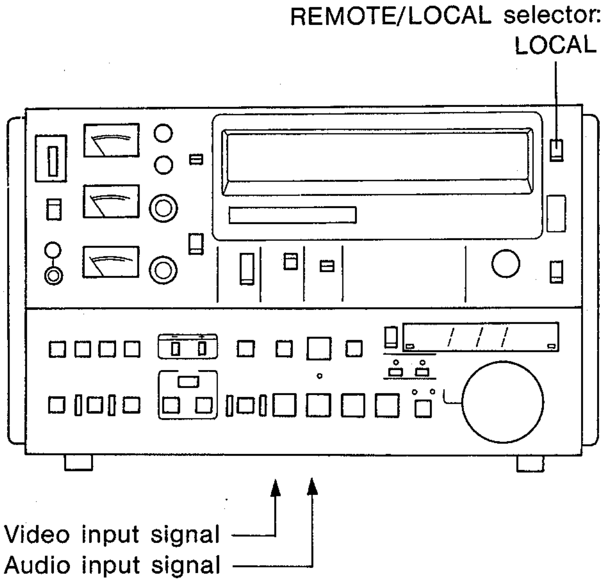


1. Select the editing mode: assembly or insert.
2. Play back the tapes of the recorder and player.
3. At the point where the scene is to begin, press the PLAY and EDIT buttons on the recorder simultaneously.
   Edit recording will begin at the point where the buttons have been pressed.
4. At the point where the scene is to end, press the PLAY button on the recorder.
   The edit recording will stop and the recorder will enter the playback mode.

Notes

- If editing is started from the stop mode or stopped by the STOP button, the picture will be unstable at the IN or OUT point.
- To obtain a perfectly stable playback picture, start the playback at least 10 seconds prior to the IN point.
- If the inserted KSP cassette is not played back before making an edit recording so that the SP/conventional mode circuit cannot detect the recorded format, the edit recording cannot be made with the proper recording format.

1-6-9. Editing with One BVU-850P

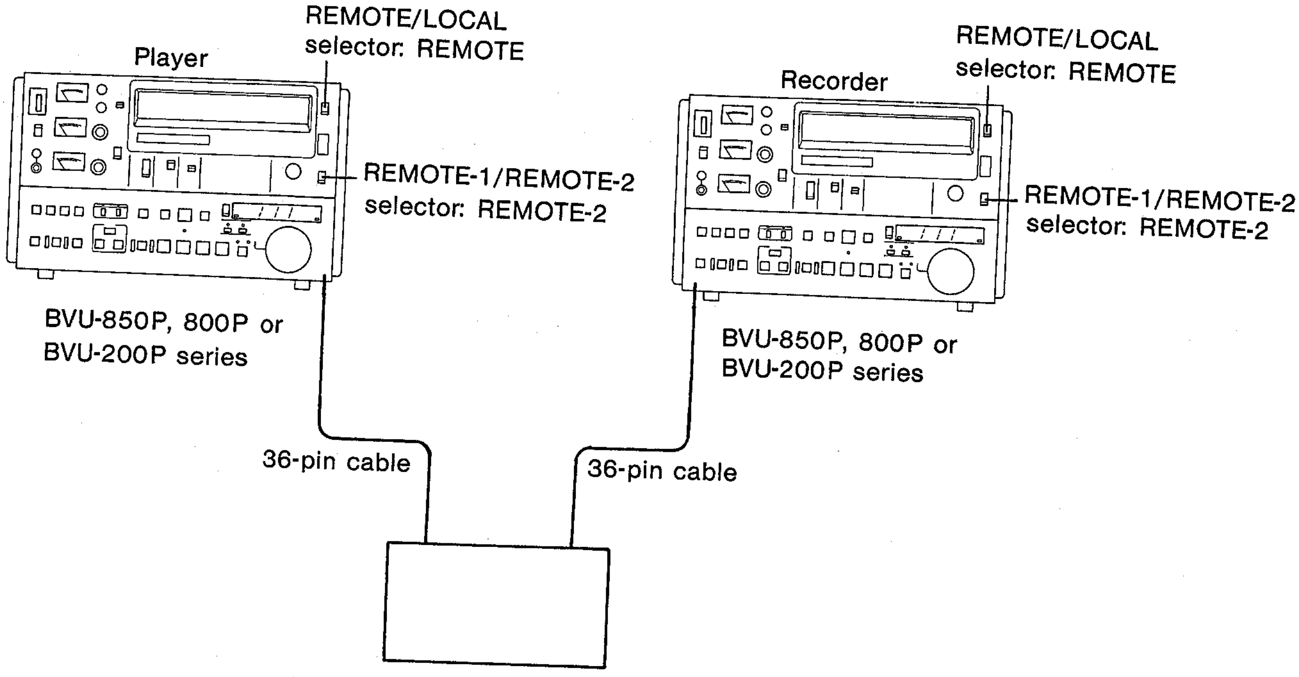


If a video and audio input signal is connected to this unit, editing can be made as described on the previous pages.

Note

The IN and OUT points can be entered and the AUTO EDIT, PREVIEW and TRIM buttons can be operated with this unit.
Operate the input video and audio signal source separately.

1-6-10. Editing with Conventional Editing Control Unit


Player
REMOTE/LOCAL selector: REMOTE
REMOTE-1/REMOTE-2 selector: REMOTE-2
BVU-850P, 800P or BVU-200P series
Recorder
REMOTE/LOCAL selector: REMOTE
REMOTE-1/REMOTE-2 selector: REMOTE-2
BVU-850P, 800P or BVU-200P series
36-pin cable
36-pin cable

Sony BVE series editing control unit

Use the function buttons on the control unit to remotely control the player and the recorder.

To take the inserted cassette out
Set the REMOTE/LOCAL selector to LOCAL and then press the EJECT button.

Notes on use of the BVE-500 series editing control unit

- When the BVE-500 series search dial is set to × 2, the tape of the BVU-850P runs at 5 times normal speed and when set to × 1/20, at 1/30 normal speed.
- When changing the mode of the BVU-850P from the search mode using a button on the BVE-500 series, be sure to keep the button pressed until the machine is set in your desired mode.
- When the buttons on the BVE-500 series are pressed, the appropriate lamps on the BVU-850P may not light. The lamps on the BVE-500 series indicate the correct operating mode of the player and recorder.
- When the BVE-500 series control unit is connected, the preroll time of the VTRs is set with the preroll time switch in the BVE-500 unit to 3 or 5 seconds.
- When the BVU-850P is used as a recorder with the BVE-500 series unit connected, set the COLOR FRAMING switch on the recorder to OFF.

1-7. PROTECTING TAPES

In order to prevent any damage to the tape, the unit automatically goes into the reset mode, when something wrong happens during operation.
For example:

Fast foward/rewind/forward/reverse/stop/still mode:
  When irregular reel rotation or tape tension is detected, system control forces the unit to STOP or EJECT, then after 3 seconds, if irregular reel rotation or tape tension is still detected, the reel motor power will turn off and the mechanical brake is applied simultaneously.

During threading/unthreading:
  When irregular reel rotation or tape tension is detected, system control forces the unit to STOP or EJECT.

Irregular voltage, sensor LED damage:
  When irregular voltage at B + power line or sensor LED damage (no light) is detected, system control forces the unit to STOP or EJECT, and the mechanical brake is applied.

1-8. CLEANING HEADS

Clean the video heads and audio heads with an optional KC-1C video head cleaning cassette. For details, refer to the instructions attached to the cleaning cassette.

Note

As the head drum rotates even in the stop mode, be sure to eject the cleaning cassette after use.

1-9. SPECIFICATIONS

Mechanical

Weight	38 kg (81 lb 9 oz)
Dimensions	454 × 283 × 550 mm (17⅞ × 11¼ × 21¾ inches) (w/h/d)
Operating position	Horizontal
Tape transport mechanism	U-matic system
Video cassette	KCA, KCS, KSP and KSP-S video cassettes (3/4-inch cassette)
Tape speed	9.53 cm/s
Wow/flutter	±0.25% (DIN)
Record/playback time	60 min. maximum with KCA-60 video cassette
Fast forward time	Less than 4 min. with KCA-60 video cassette
Rewind time	Less than 2.5 min. with KCA-60 video cassette
Search speed	SHUTTLE: Still, 1/30, 1/10, 1/5, 1/2, 1,2,5 and 10 times normal in forward and reverse direction JOG: Still to 1 in forward and reverse direction
Connectors	AC IN: 3-pin AC connector VIDEO IN(2): BNC connectors VIDEO OUT (2): BNC connectors AUDIO IN CH-1/L, CH-2/R: XLR female connectors AUDIO OUT CH-1/L,CH-2/R: XLR male connectors AUDIO OUT MONITOR: XLR male connectors TIME CODE IN: BNC connector TIME CODE OUT: BNC connector DUB IN: 7-pin male connector DUB OUT: 7-pin female connector SC IN: BNC connector EXT SYNC IN: BNC connector RF(OFF TAPE): BNC connector TBC: CCY connector MONITOR OUT: 8-pin connector REMOTE 2 (36P): 36-pin connector REMOTE 1 (9P): RS-422 9-pin connector HEADPHONES: JM-60 stereo phone jack
Operating temperature	+5°C to +40°C (40°F to 104°F)
Storage temperature	−20°C to +60°C (−4°F to +140°F)

Electrical

Power requirements	AC100/120/220/240 V ±10% (Selectable), 48 to 64 Hz
Power consumption	180W (with the accessories)
Editing functions	ASSEMBLE and INSERT (VIDEO, AUDIO CH-1, AUDIO CH-2), AUTO EDIT, MANUAL EDIT, PREVIEW, REVIEW, PREROLL, TRIM

Video

Video recording system	Luminance: FM Chroma: SC low-range conversion
Input	PAL composite video, sync negative 1.0 Vp-p ±0.3V, 75Ω, unbalanced
Output	PAL composite video, sync negative 1.0 Vp-p ± 0.2V, 75Ω, unbalanced
Dubbing input	Luminance signal: 0.5 Vp-p Sync negative, Impedance: 75Ω ±10% Chroma signal: 0.5 Vp-p Impedance: 75Ω ±10%
Dubbing output	Luminance signal: 0.5 Vp-p Sync negative Impedance: 75Ω ± 10% Chroma signal: 0.5 Vp-p Impedance: 75Ω ± 10%
Horizontal resolution	SP mode 300 lines (monochrome/color mode) Conventional mode 260 lines (monochrome/color mode)
Signal to noise ratio	SP mode Color mode: More than 46 dB Luminance(Y): More than 49 dB AM: More than 46 dB PM: More than 41 dB Conventional mode More than 46 dB (color mode)

SP mode only

K-factor (2T pulse)	Less than 3%
DG	Less than 3%
DP	Less than 3°
Y/C delay	Less than 25 ns

Audio

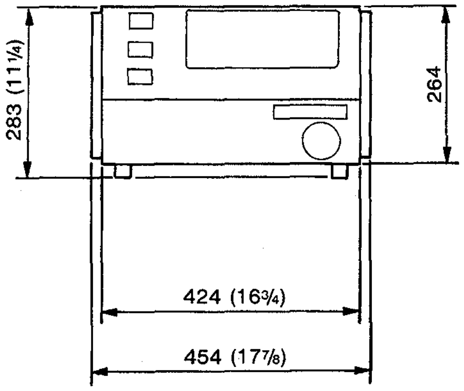
Input	MIC	−60 dB, 3 k ohms, balanced (matches 600-ohm microphones)
	LINE	+4 dB, 10 k ohms/600 ohms, balanced
Output	LINE	+4 dB, low impedance, balanced (600-ohm load permissible)
	HEADPHONES	−46 to −26 dB, 8-ohm load, binaural
	MONITOR	+4 dB, 600-ohm load, balanced
Distortion		Less than 2.0% (1 kHz reference level)
Frequency response	SP mode	50 Hz to 15 kHz ±3dB
	Conventional mode	50 Hz to 15 kHz ± 4 dB
Signal to noise ratio	SP mode	More than 52 dB (at 3% distortion level, without the audio NR system)
	Conventional mode	48 dB (at 3% distortion level)
TIME CODE input		0 dB ±6 dB, 10 k ohms, unbalanced (0 dB = 1.55 Vp-p pulse)
TIME CODE output		0 dB ±3 dB, low impedance, unbalanced (0 dB = 1.55 Vp-p pulse)
SC input		2 Vp-p ±1V, 75 ohms, unbalanced
SYNC input		0.2 Vp-p to 5 Vp-p, negative, 75 ohms, unbalanced (1 Vp-p ±0.2V with VIDEO input)
RF output (OFF TAPE)		0.5 Vp-p ±0.1V, 75 ohms, unbalanced

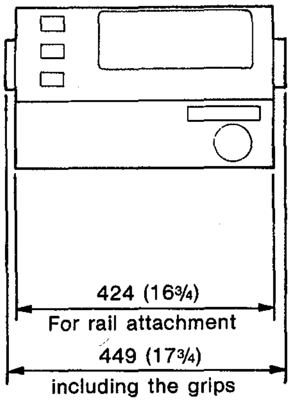
Accessories supplied

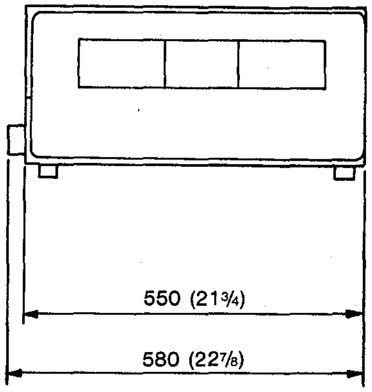
AC power cord	1
Dubbing cable VDC-5 (5m)	1
Remote control cable (9 pin–9 pin) RCC-5G	1
Extension board EX-7	1
Operation and maintenance manual	2

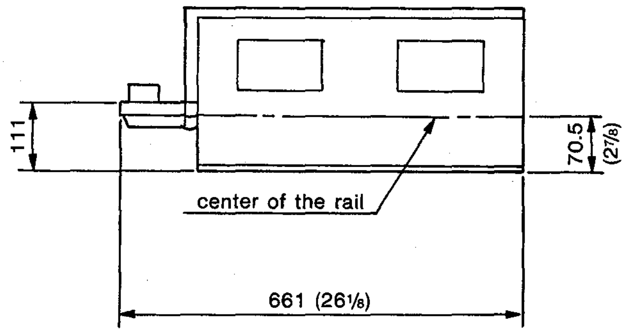
Design and specifications subject to change without notice.

Dimensions


283 (11¼)
264
424 (16¾)
454 (17⅞)


424 (16¾)
For rail attachment
449 (17¾)
including the grips


550 (21¾)
580 (22⅞)


111
70.5 (2⅞)
center of the rail
661 (26⅛)

UNIT: mm (inch)

TEIL 1
BETRIEB

1-1. BESONDERE MERKMALE

1-1-1. Neues Format

Neu entwickeltes „Super Performance“ -Format
Beim neuen SP-Format wird der Y-Träger um 0,8 MHz angehoben, so daß sich eine größere Bandbreite und damit auch bessere Bildqualität ergibt. Ein speziell auf das SP-Format zugeschnittenes hochqualitatives Band steht bereits zur Verfügung. Beim Einsetzen einer SP-Format-Cassette wird automatisch auf das neue SP-Format umgeschaltet.

Kompatibilität mit herkömmlichem Aufnahmeformat
Mit dem BVU-850P können sowohl SP-Format- als auch herkömmliche U-matic-Bänder bespielt und wiedergegeben werden. Sowohl bei Aufnahme als auch bei Wiedergabe erfolgt die Formatumschaltung automatisch. Bei KCA- und KCS-Bändern wird automatisch auf das herkömmliche Format geschaltet. Wenn das Gerät auf SP-Format schaltet, leuchtet die SP-Lampe auf.

1-1-2. Audio

Hochqualitative Tonaufzeichnung
Der Sendust-Tonkopf ermöglicht Aufnahmen mit breitem Frequenzbereich.

Dolby-Rauschverminderungssystem
Zur wirkungsvollen Rauschverminderung ist im BVU-850P ein Dolby-NR*-System eingebaut. Das System kann beim Aufnehmen wahlweise ein- oder ausgeschaltet werden. Bei der Wiedergabe erfolgt die Ein-/Ausschaltung des Dolby-Systems automatisch.

Nützliche Sonderfunktionen
Aufnahme- und Wiedergabepegel können getrennt eingestellt werden. Außerdem besteht die Möglichkeit, die Kanäle 1 und 2 beim Aufnehmen zu mischen. Ein wahlweise zuschaltbarer Begrenzer sorgt auch bei plötzlich auftretenden Signalspitzen für verzerrungsfreie Aufzeichnung.

* „Dolby“ und das Doppel-D-Symbol sind eingetragene Warenzeichen der Dolby Laboratories Licensing Corporation. Das Rauschverminderungssystem wird unter Lizenz der Dolby Laboratories Licensing Corporation hergestellt.

1-1-3. Video

Capstan-Servo
Der BVU-850P besitzt ein extern synchronisierbares Capstan-Servosystem.

Bild-Servo
Das Bild-Servosystem kann zwischen geraden und ungeraden Halbbildern unterscheiden, so daß der Schnitt stets exakt zwischen dem Ende eines geraden und dem Anfang des nächsten ungeraden Halbbildes erfolgt.

Halbbildrichtige Farbträgerverkopplung
Ein spezieller Schaltkreis kann die 4 Halbbilder unterscheiden. Die Aneinanderreihung der Halbbilder kann dann so erfolgen, daß keine Farbblitze an der Schnittstelle entstehen.

Direktantrieb mit Gleichstrommotoren
Unabhängige Gleichstrommotoren für Kopftrommel, Capstan, Abwickel- und Aufwickelspule stellen schnellen Zugriff zu den Schnittpunkten sicher. Der Bandzug wird von einem Servosystem exakt geregelt.

ϕ^2 Servoregelkreis
Dieser Schaltkreis gleicht die H-Phase des Wiedergabesignals auf das Eingangssignal ab, so daß Bildstörungen („Fahnen" oder „Überstrahlen") am Schnittpunkt vermieden werden.

Chroma-Enhancer
Durch den eingebauten Chroma-Enhancer werden die Kanten des Chromasignals verstärkt.

Video-Aufnahmepegel wahlweise automatisch oder manuell einstellbar

1-1-4. Schnittbetrieb

Schnitt-Funktionen
Im Assemble-Betrieb können Videosignal, Tonkanal 1 und Tonkanal 2 gleichzeitig geschnitten werden. Im Insert-Betrieb ist dagegen ein unabhängiges Schneiden von Videosignal, Tonkanal 1 und Tonkanal 2 möglich. Sowohl vor als auch nach der Schnittaufnahme ist eine Schnittüberprüfung möglich.

Schneller Zugriff zu den Schnittpunkten
Zum schnellen Auffinden von Schnittpunkten ermöglicht das Gerät zwei verschiedene Suchlaufbetriebe mit erkennbarem Wiedergabebild: Im Shuttle-Suchbetrieb kann die Wiedergabegeschwindigkeit in 16 Schritten von 1/30 bis zur zehnfachen Normalgeschwindigkeit in beiden Richtungen variiert werden, im Jog-Suchbetrieb bewegt sich das Band analog der Suchlaufknopf-Drehung. Im Bereich −5 bis +5 facher Normalgeschwindigkeit ist ein Farbbild sichtbar.
Auch bei Vorspul- und Rückspulbetrieb ist ein Bild sichtbar, wenn das Band um die Kopftrommel geschlungen ist und ein Time-Base-Corrector verwendet wird.

Schnitt/Überspiel-Anschlüsse
Diese Anschlüsse ermöglichen Schneiden und Überspielen von Videosignalen mit nur geringer Qualitätseinbuße.

Fernbedienung
Werden zwei BVU-850P verwenden, so kann die Wiedergabe-Maschine über die Bedienungselemente der Aufnahme-Maschine gesteuert werden.

1-1-5. Weitere Funktionen

Bedienungen der Vorderseite
Alle Bedienungsvorgänge einschließlich Einlegen und Herausnehmen der Cassette können am vorderen Bedienungspult, das sich je nach Anforderungen um bis zu 90° (in sechs Stufen) schwenken läßt, ausgeführt werden. Zur Externbedienung kann das Bedienungspult auch abgenommen werden, wobei der Anschluß dann über das als Sonderzubehör lieferbare Fernbedienungskabel BK-802 erfolgt.

Kontrollampen
Diese gut erkennbar an der Vorderseite angebrachten Lampen signalisieren folgendes: Funktion des farbträgerverkoppelten Halbbild-Servosystems, des Dolby-Systems, des SP-Formats, des Kondenswasserdetektors, der Zeitcode-Aufnahme/Wiedergabe, des Capstan-Antriebs und der Kopftrommel-Servoverriegelung.

Digitaler Zeitzäler
Der Zeitzähler zählt die CTL-Signale und zeigt die bereits durchgelaufene Bandmenge an, so daß die Schnittpunkte exakt aufgefunden werden. Auch die Schnittzeit kann angezeigt werden.

Rückspulautomatik und Stoppautomatik
Am Bandende spult das Band automatisch zum Anfang zurück (Rückspulautomatik).
Am Bandanfang stoppt das Band automatisch (Stoppautomatik).

Steckbare Leiterplatten
Die steckbaren Leiterplatten wurden im Hinblick auf hohe Service- und Wartungsfreundlichkeit entwickelt. Durch Abnehmen der oberen Geräteabdeckung sind sie bequem zugänglich.

1-1-6. Sonstiges

Zeitcode-Aufnahme und -Wiedergabe
Die Aufzeichnung des EBU-Zeitcodes erfolgt auf einer getrennten Adreßspur, so daß keine Tonspur geopfert werden muß.

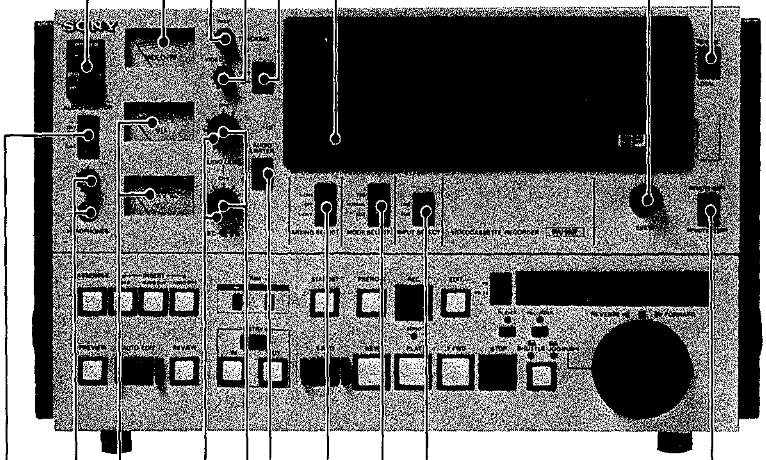
Anschlußmöglichkeit für Time-Base-Corrector
Am TBC-Anschluß kann ein Time-Base-Corrector mit 18pol VTR-Anschluß bequem angeschlossen werden. Um auch andere Time-Base-Correctoren verwenden zu können, besitzt der BVU-850P zusätzlich einen externen Hilfsträger- und Synchronsignal-Eingang sowie einen HF-Ausgang.

Einbaumöglichkeit in 19-Zoll Normgestell
Der BVU-850P kann in ein genormtes 19-Zoll Gestell eingebaut werden. Zum Einbau siehe Abschnitt 2.

1-2. LAGE UND FUNKTION DER BEDIENUNGSELEMENTE

1-2-1. Bedienungspult

Oberes Bedienungspult



❶ Netzschalter (POWER)

❷ Video/HF-Meter (VIDEO/RF)

❸ Spurlageregler (TRACKING)

❹ Videopegelregler (VIDEO LEVEL)

❺ Videopegelschalter (VIDEO LEVEL)

❻ Kontrollampen

❼ Schrägfehlerregler (SKEW)

❽ Fernbedienung/Direkt-Wähler (REMOTE/LOCAL)

❾ Fernbedienung 1/ Fernbedienung 2-Wähler (REMOTE-1/REMOTE-2)

❿ Eingangswahlschalter (INPUT SELECT)

⓫ Bezugssignalwähler (MODE SELECT)

⓬ Mischwähler (MIXING SELECT)

⓭ Tonsignalbegrenzerschalter (AUDIO LIMITER)

⓮ Wiedergabe-Tonpegelregler (AUDIO LEVEL PB)

⓯ Aufnahme-Tonpegelregler (AUDIO LEVEL REC)

⓰ VU-Meter

⓱ Kopfhörerbuchse (HEADPHONES) und Kopfhörerlautstärke-Regler

⓲ Tonsignalwähler (AUDIO MONITOR)

❶ Netzschalter (POWER)

Stellen Sie diesen Schalter zum Einschalten des Geräts auf ON. Die Anzeigen leuchten auf, und der Zähler zeigt 0:00:00:00 an.

❷ Video/HF-Meter (VIDEO/RF)

Zeigt den Videoeingangspegel während Aufnahme- und E-zu-E-Betrieb an.
Bei Wiedergabe wird der aufgezeichnete FM-Signalpegel (Trackingpegel) angezeigt.

❸ Spurlageregler (TRACKING)

Mit diesem Regler kann beim Wiedergeben des Bandes die Spurlage eingestellt werden.
Stellen Sie den Regler normalerweise auf FIXED.
Ist das Wiedergabebild gestört, drehen Sie diesen Regler nach links oder rechts, bis das VIDEO/RF-Meter ❷ maximal ausschlägt. Stellen Sie den Regler nach dem Abspielen des gestörten Bandes wieder in die Stellung FIXED zurück.
Beim Aufnehmen ist der Regler immer in die Stellung FIXED zu stellen. Wird der Regler während der Aufnahme gedreht, so ist das spätere Wiedergabebild an dieser Stelle instabil.

❹ Videopegelregler (VIDEO LEVEL)

Zur Einstellung des Videoeingangspegels, wenn der VIDEO LEVEL-Schalter ❺ auf MAN gestellt ist.
Wenn sich das Gerät im E-zu-E-Betrieb befindet, stellen Sie diesen Regler so ein, daß sich der Zeiger des VIDEO/RF-Meters ❷ im blauen Bereich befindet.

❺ Videopegelschalter (VIDEO LEVEL)

AUTO: Der AGC-Schaltkreis wird aktiviert, und die Einstellung des Videoingangspegels erfolgt automatisch. Der AGC-Schaltkreis verwertet zur automatischen Pegeleinstellung das Eingangs-Synchronsignal.

MAN: Der Videoeingangspegel kann am VIDEO LEVEL-Regler ❹ manuell eingestellt werden.

❻ Kontrollampen

FRAMING: Diese Lampe leuchtet auf, wenn der COLOR FRAMING-Schalter auf der Geräterückseite auf ON gestellt ist, und die halbbildrichtige Farbträgerverkopplung aktiviert ist.

TIME CODE: Diese Lampe leuchtet auf, wenn Zeitcode-Signale aufgezeichnet oder wiedergegeben werden.

DOLBY: Diese Lampe leuchtet auf, wenn sich das Gerät im Aufnahme- oder E-zu-E-Betrieb befindet und der DOLBY NR-Schalter auf ON gestellt ist. Die Lampe leuchtet ebenfalls bei der Wiedergabe eines mit Dolby bespielten Bandes.

SP: Diese Lampe leuchtet auf, wenn der eingebaute Formaterkennungsschaltkreis SP-Format registriert. Wenn die SP-Format-Cassette eine Aufnahme mit herkömmlichem Format enthält, erlischt die Lampe bei der Wiedergabe wieder.

AUTO OFF: Diese Lampe leuchtet auf, wenn im Inneren des Geräts Kondenswasser festgestellt wurde oder wenn die Bandspannung abnormal ist.

❼ Schrägfehlerregler (SKEW)

Normalerweise ist dieser Regler auf FIXED zu stellen. Wenn Störungen im oberen Bildteil auftreten, justieren Sie diesen Regler ein, um die richtige Bandspannung einzustellen. Der Regler kehrt automatisch in die Stellung FIXED zurück, wenn das Gerät auf Aufnahme geschaltet wird.

❽ Fernbedienung/Direkt-Wähler (REMOTE/LOCAL)

REMOTE: Diese Position ist zu verwenden, wenn das Gerät von einer am 9pol REMOTE 1- oder 36pol REMOTE 2-Anschluß angeschlossenen Schnitt-Steuereinheit aus fernbedient werden soll. Die Funktionstasten (außer der STOP- und EJECT-Taste) arbeiten dann nicht.

LOCAL: Stellen Sie den Wähler auf LOCAL, wenn die Funktionstasten des Geräts zum Bedienen des Geräts selbst und der angeschlossenen Geräte verwendet werden sollen.

❾ Fernbedienung 1 (9pol)/Fernbedienung 2 (36pol)-Wähler (REMOTE-1/REMOTE-2)

Steht der REMOTE/LOCAL-Wähler ❽ auf REMOTE, so stellen Sie den REMOTE-1/REMOTE-2-Wähler in die entsprechende Stellung:

REMOTE-1: Bei Verwendung des 9pol Fernbedienungsanschlusses 1.

REMOTE-2: Bei Verwendung des 36pol Fernbedienungsanschlusses 2.

❿ Eingangswähler (INPUT SELECT)

Stellen Sie an diesem Wähler das aufzunehmende Videosignal ein.

LINE: Das an den VIDEO IN-Anschlüssen anliegende FBAS-Signal wird aufgezeichnet.

DUB: Das am DUB IN-Anschluß anliegende Videosignal wird aufgezeichnet.

⓫ Bezugssignalwähler (MODE SELECT)

Zur Wahl des Bezugssignals für die Servoverriegelung.

TBC: Bei Wiedergabe mit Time-Base-Corrector.

NORMAL: Bei Wiedergabe ohne Time-Base-Corrector oder bei Aufnahme.

EDIT: Beim Schneiden
Mit dem SERVO LOCK-Wähler wird u.a. das Bezugssignal gewählt. Siehe Tabelle auf Seite 1-16 „Wahl des Bezugssignals“.

⑫ Mischwähler (MIXING SELECT)
Stellen Sie hier die Spur ein, auf die das Tonmischsignal von Kanal 1 und Kanal 2 aufgezeichnet werden soll. (Die Einstellung ist auch bei E-zu-E-Betrieb wirksam.)

To CH-1: Das Mischsignal wird auf Spur 1 aufgezeichnet. Auf Spur 2 wird nur das Tonsignal 2 aufgenommen.
OFF: Tonsignal 1 und 2 werden getrennt auf Spur 1 und 2 aufgezeichnet.
To CH-2: Das Mischsignal wird auf Spur 2 aufgezeichnet. Auf Spur 1 wird nur Tonsignal 1 aufgenommen.

⑬ Tonpegel-Begrenzerschalter (AUDIO LIMITER)
Ist dieser Schalter eingeschaltet, so arbeitet der Tonpegel-Begrenzerschaltkreis. Beim Aufnehmen beschneidet dieser Schaltkreis plötzlich auftretende Pegelspitzen, so daß stets eine verzerrungsfreie Aufnahme hoher Qualität gewährleistet ist. Schalten Sie diesen Schalter ein, nachdem der Aufnahme-Tonpegel mit dem AUDIO LEVEL REC-Regler ⑮ eingestellt wurde.

⑭ Wiedergabe-Tonpegelregler (AUDIO LEVEL PB) (innerer Regler)
Zur Einstellung des Ausgangspegels von Tonsignal 1 und Tonsignal 2. Stellen Sie die Regler bei Wiedergabe so ein, daß die VU-Meter ⑯ in den Spitzen bis 0 VU ausschlagen.

⑮ Aufnahme-Tonpegelregler (AUDIO LEVEL REC) (äußerer Regler)
Zur Einstellung des Eingangspegels von Tonsignal 1 und Tonsignal 2. Befindet sich das Gerät im E-zu-E-Betrieb, so stellen Sie diese Regler so ein, daß die VU-Meter ⑯ in den Spitzen bis 0 VU ausschlagen.

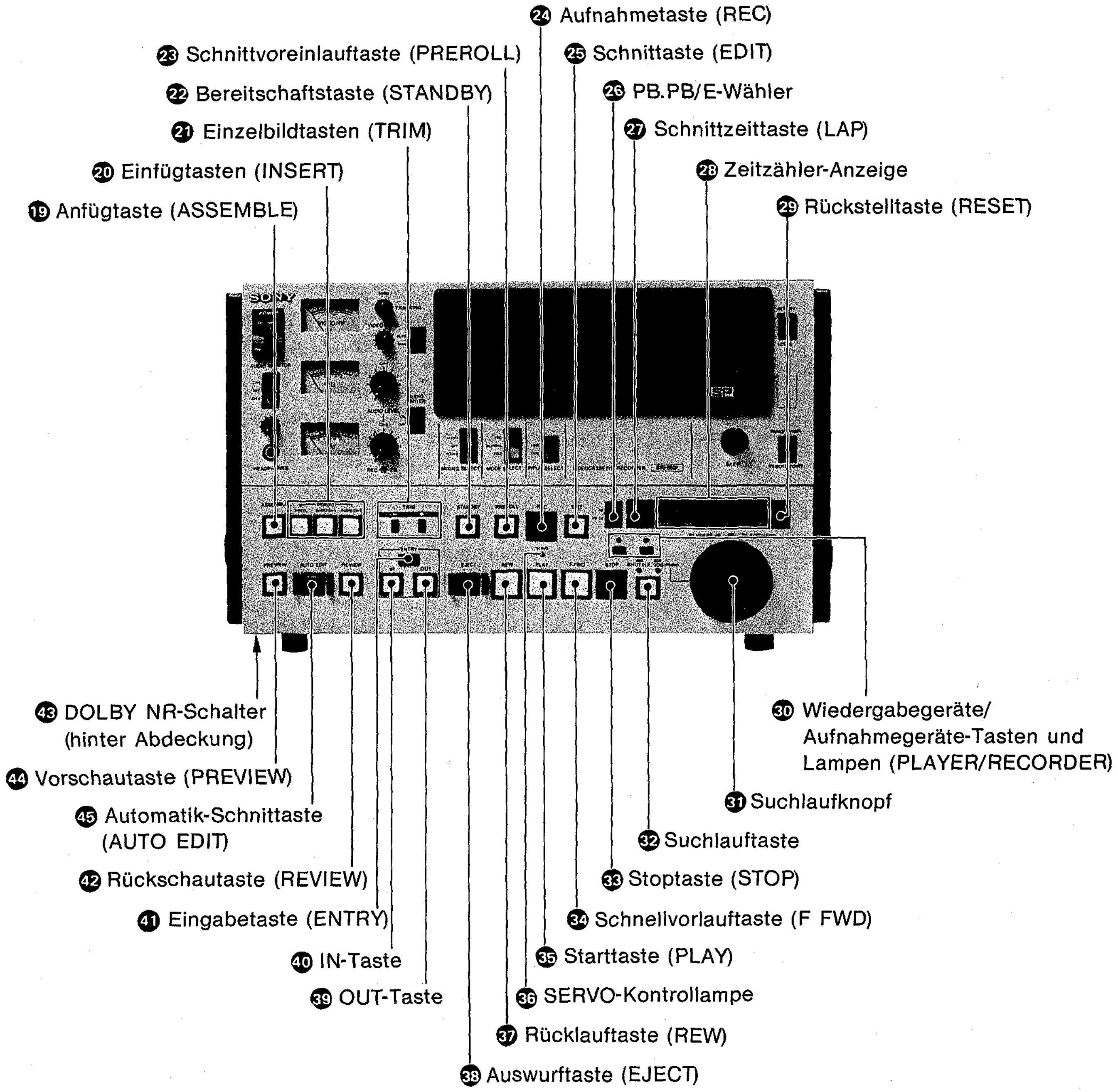
⑯ VU-Meter
Im Aufnahme- und E-zu-E-Betrieb wird hier der Toneingangspegel und im Wiedergabebetrieb der Tonausgangspegel angezeigt.

⑰ Kopfhörerbuchse (HEADPHONES) und Kopfhörerlautstärkeregler
Hier kann ein 8-Ohm Stereo-Kopfhörer angeschlossen werden. Der Ton kann dann bei Aufnahme, beim Schnittvorgang und bei Wiedergabe mitgehört werden. Die Lautstärke des Mithörtons ist am Kopfhörerlautstärkeregler einstellbar.

⑱ Tonsignalwähler (AUDIO MONITOR)
Das Tonsignal der HEADPHONES-Buchse ⑰, des auf der Rückseite befindlichen MONITOR-Anschlusses ⑫ und des AUDIO OUT MONITOR-Anschlusses ⑯ wird hier gewählt.

CH-1: Tonsignal 1.
MIX: An der HEADPHONES-Buchse liegen Signal 1 und 2, an den MONITOR- und AUDIO OUT MONITOR-Anschlüssen liegt ein Mischsignal beider Kanäle an.
CH-2: Tonsignal 2.

Unteres Bedienungspult


㉔ Aufnahmetaste (REC)
㉓ Schnittvoreinlauftaste (PREROLL)
㉕ Schnittaste (EDIT)
㉒ Bereitschaftstaste (STANDBY)
㉖ PB.PB/E-Wähler
㉑ Einzelbildtasten (TRIM)
㉗ Schnittzeittaste (LAP)
⑳ Einfügtasten (INSERT)
㉘ Zeitzähler-Anzeige
⑲ Anfügtaste (ASSEMBLE)
㉙ Rückstelltaste (RESET)
SONY
SP
㊸ DOLBY NR-Schalter (hinter Abdeckung)
㉚ Wiedergabegeräte/Aufnahmegeräte-Tasten und Lampen (PLAYER/RECORDER)
㊹ Vorschautaste (PREVIEW)
㉛ Suchlaufknopf
㊺ Automatik-Schnittaste (AUTO EDIT)
㉜ Suchlauftaste
㊷ Rückschautaste (REVIEW)
㉝ Stoptaste (STOP)
㊶ Eingabetaste (ENTRY)
㉞ Schnellvorlauftaste (F FWD)
㊵ IN-Taste
㉟ Starttaste (PLAY)
㊴ OUT-Taste
㊱ SERVO-Kontrollampe
㊲ Rücklauftaste (REW)
㊳ Auswurftaste (EJECT)

⑲ Anfügtaste (ASSEMBLE)

Drücken Sie diese Taste zum Umschalten auf Anfügbetrieb. Durch nochmaliges Drücken wird diese Betriebsart wieder ausgeschaltet.

⑳ Einfügtasten (INSERT)

Mit diesen Tasten wird das Eingangssignal für den Schnittbetrieb gewählt und gleichzeitig auf Einfüg-Schnittbetrieb geschaltet. Die Tasten leuchten beim Drücken auf.

㉑ Einzelbildtasten (TRIM)

Die eingegebenen Schnittpunkte können um eine beliebige Vollbildzahl korrigiert werden. Halten Sie hierzu die IN-Taste ㊵ oder OUT-Taste ㊴ gedrückt und drücken Sie gleichzeitig die TRIM + oder TRIM − Taste. Bei jedem Drücken der TRIM + Taste wird der Schnittpunkt um ein Vollbild vorgerückt und bei jedem Drücken der TRIM − Taste um ein Vollbild zurückgerückt.

㉒ Bereitschaftstaste (STANDBY)

Wird der Netzschalter eingeschaltet, so leuchtet die STANDBY-Lampe und zeigt damit an, da sich die Kopftrommel dreht und das Gerät betriebsbereit ist. Wird diese Taste aus der Stop-Funktion heraus gedrückt, so bleibt die Kopftrommel stehen, und die Bandspannung verringert sich, um einer Beschädigung des Videokopfes vorzubeugen. Durch erneutes Drücken der STANDBY-Taste oder einer anderen Betriebstaste (außer der STOP-Taste) kann wieder in die Stop-Funktion oder in einen anderen Betriebszustand geschaltet werden.

㉓ Schnittvoreinlauftaste (PREROLL)

Durch Drücken dieser Taste wird das Band schnell zu einem 10 Sekunden oder 5 Sekunden (je nach Stellung des Vorlaufzeitschalters) vor dem IN-Punkt liegenden Punkt gespult.
Wurde kein IN-Punkt eingegeben, so wird der Punkt, an dem die Schnittvoreinlauftaste gedrückt wurde, als IN-Punkt eingegeben.

㉔ Aufnahmetaste (REC)

Drücken Sie diese Taste gleichzeitig mit der PLAY-Taste ㉟, um die Aufnahme zu starten.
Wird diese Taste aus dem Wiedergabe-, Suchlauf-, Schnellvorlauf- oder Rücklaufbetrieb heraus gedrückt, so kann das E-zu-E-Video- und Tonsignal überwacht werden. Durch Drücken der STOP-Taste wird das Gerät in die Stop-Funktion geschaltet.

㉕ Schnittaste (EDIT)

Zum Starten des manuellen Schnittbetriebs drücken Sie diese Taste gleichzeitig mit der PLAY-Taste ㉟.
Wird diese Taste aus dem Wiedergabe-, Suchlauf-, Schnellvorlauf- oder Rücklaufbetrieb heraus gedrückt, so kann das mit den Tasten ASSEMBLE ⑲ oder INSERT ⑳ gewählte E-zu-E-Video- und das Tonsignal überwacht werden. Durch Drücken der STOP-Taste wird das Gerät in die Stop-Funktion geschaltet.

㉖ PB.PB/EE-Wähler

Zur Wahl des zu überwachenden Video- und Tonsignals. Genauere Informationen siehe Tabelle auf Seite 1-16.

㉗ Schnittzeittaste (LAP)

Nach Eingabe der IN- und OUT-Punkte drücken Sie diese Taste zur Anzeige der Schnittdauer (Zeitdauer zwischen IN- und OUT-Punkten) auf dem Zeitzähler.

㉘ Zeitzähler-Anzeige

Zeigt die Bandlaufzeit in Stunden, Minuten, Sekunden und Vollbilder durch Zählen der CTL-Signale bzw. durch Lesen des Zeitcodes an.

㉙ Rückstelltaste (RESET)

Zum Rückstellen der Anzeige des Zeitzählers und Löschen der gespeicherten Schnittpunkte.

㉚ Wiedergabegeräte/Aufnahmegeräte-Tasten und Lampen (PLAYER/RECORDER)

Diese Tasten sind zu verwenden, wenn das Gerät an Schnittgeräte mit 9pol REMOTE-1-Anschluß angeschlossen und als Aufnahmegerät des Schnittsystems eingesetzt wird.

PLAYER-Taste: Beim Drücken dieser Taste leuchtet die PLAYER-Lampe auf, und die Funktionstasten steuern das angeschlossene Wiedergabegerät.

RECORDER-Taste: Durch Drücken dieser Taste leuchtet die RECORDER-Lampe auf, und die Funktionstasten steuern das Gerät selbst.

- Wird das Gerät alleine verwendet, arbeiten die PLAYER- und RECORDER-Tasten nicht.

㉛ Suchlaufknopf

Mit diesem Knopf können die gewünschten Schnittpunkte schnell aufgefunden werden. Durch Drehen nach rechts läuft das Band vorwärts (▷-Lampe leuchtet), und durch Drehen nach links läuft es rückwärts (◁-Lampe leuchtet). Wird das Band gestoppt, leuchtet die □-Lampe auf.
Durch Drücken des Knopfes geht das Gerät in den Jog-Betrieb und durch nochmaliges Drücken geht es in den Shuttle-Betrieb. Die entsprechende Lampe leuchtet jeweils auf.

SHUTTLE: Durch Drehen des Knopfes nach rechts oder links kann die Bandgeschwindigkeit von 1/30 bis 10fache Normalgeschwindigkeit in beiden Richtungen verändert werden. In der Mittelstellung erscheint ein Standbild.

JOG: Das Band bewegt sich entsprechend der Richtung und Geschwindigkeit der Knopfdrehung (0 bis Normalgeschwindigkeit). Wird der Knopf nicht gedreht, so erscheint ein Standbild.

Hinweis

Achten Sie darauf, den Knopf beim Einschalten des Netzschalters vor dem Benutzen einmal kurz in die Mittelposition zu stellen.

㉜ Suchlauftaste
Durch Drücken dieser Taste wird das Gerät auf Suchlaufbetrieb geschaltet. Drücken Sie diese Taste, nachdem der Suchlaufknopf im Shuttle-Betrieb eingestellt wurde. Die Wiedergabe beginnt dann mit der am Suchlaufknopf eingestellten Geschwindigkeit.

㉝ Stoptaste (STOP)
Drücken Sie diese Taste, um das Gerät in die Stop-Funktion zu schalten. Auf dem Bildschirm erscheint ein Standbild. In der Stop-Funktion dreht sich die Kopftrommel, und das Band bleibt um die Trommel geschlungen.
Wenn eine Cassette in das Gerät eingesetzt wird, schaltet es automatisch zunächst in die Stop-Funktion.

㉞ Schnellvorlauftaste (F FWD)
Zum schnellen Vorspulen des Bandes.

㉟ Starttaste (PLAY)
Zum Starten der Bandwiedergabe.
Durch gleichzeitiges Drücken dieser Taste mit der REC-Taste ㉔ oder EDIT-Taste ㉕ wird die Aufnahme oder die manuelle Schnittaufnahme gestartet. Durch erneutes Drücken wird die Aufnahme bzw. Schnittaufnahme wieder gestoppt, und das Gerät schaltet auf Wiedergabe.

㊱ SERVO-Kontrollampe
Leuchtet auf, sobald das Servosystem der Kopftrommel und der Antriebswelle stabil arbeitet.

㊲ Rücklauftaste (REW)
Zum Rückspulen des Bandes.

㊳ Auswurftaste (EJECT)
Durch Drücken dieser Taste wird das Band freigegeben und die Cassette ausgeworfen. Der Zähler wird auf „0:00:00:00“ zurückgestellt, wenn er im CTL-Betrieb arbeitet.

Hinweis
Achten Sie darauf, die Cassette jedesmal vor dem Ausschalten des Geräts herauszunehmen.

㊴ OUT-Taste
Drücken Sie diese Taste zusammen mit der ENTRY-Taste ㊶ zur Eingabe des OUT-Punktes. Wird die Taste nach der OUT-Punkt-Eingabe gedrückt, erscheinen die Daten des OUT-Punktes in der Zähler-Anzeige.

㊵ IN-Taste
Drücken Sie diese Taste zusammen mit der ENTRY-Taste ㊶ zur Eingabe des IN-Punktes. Wird die Taste nach der IN-Punkt-Eingabe gedrückt, erscheinen die Daten des IN-Punktes in der Zähler-Anzeige.

㊶ Eingabetaste (ENTRY)
Drücken Sie diese Taste zusammen mit der IN-Taste ㊵ oder OUT-Taste ㊴, um den IN- bzw. OUT-Punkt einzugeben. Die gedrückte Taste leuchtet auf.

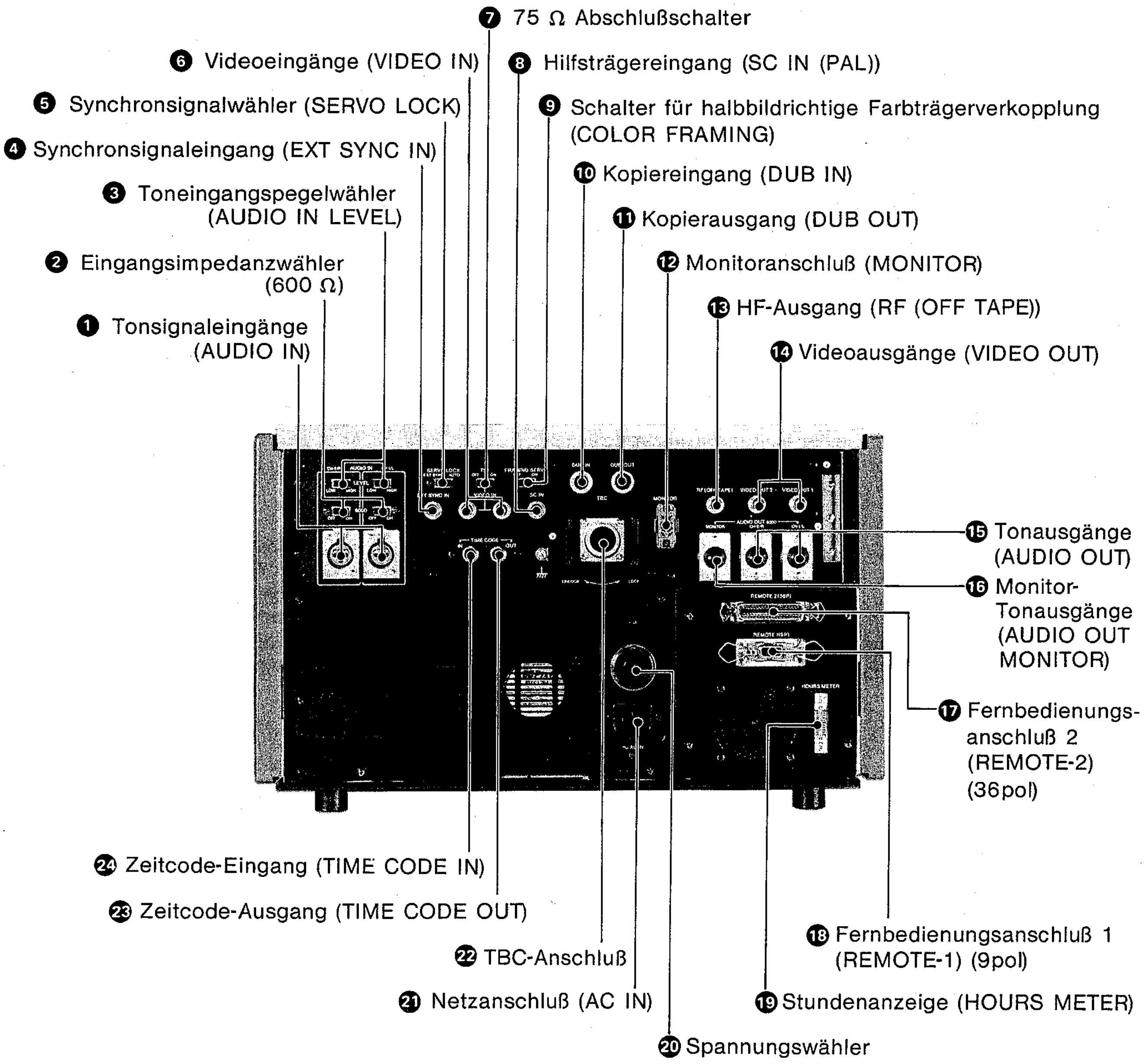
㊷ Rückschautaste (REVIEW)
Durch Drücken dieser Taste kann Bild und Ton an der Schnittstelle überprüft werden.

㊸ DOLBY NR-Schalter
Mit diesem Schalter wird das Dolby-Rauschverminderungssystem beim Aufnehmen ein- und ausgeschaltet.
ON: Zum Aufnehmen mit Dolby.
OFF: Zum Aufnehmen ohne Dolby.
Bei der Wiedergabe wird das Dolby-System automatisch ein- und ausgeschaltet.
Zum Öffnen des Bedienungspultes siehe Seite 1 - 12 „Positionierung des Bedienungspultes“.

㊹ Vorschautaste (PREVIEW)
Durch Drücken dieser Taste kann der Schnittvorgang probeweise ausgeführt werden. Der Lauf der Bänder entspricht genau dem wirklichen Schnittbetrieb, so daß das voraussichtliche Schnittresultat auf dem Monitor des Aufnahmegeräts überprüft werden kann, ohne daß wirklich aufgenommen wird. Wenn kein IN-Punkt eingegeben wurde, startet der Vorschaubetrieb an dem Punkt, an dem die Taste gedrückt wurde (dieser Punkt wird als IN-Punkt gespeichert) und endet am OUT-Punkt.

㊺ Automatik-Schnittaste (AUTO EDIT)
Drücken Sie diese Taste nach Eingabe der Schnittpunkte zum Starten des automatischen Schnittvorgangs. Wenn kein IN-Punkt eingegeben wurde, beginnt die automatische Schnittaufnahme an dem Punkt, an dem die Taste gedrückt wurde, und endet am OUT-Punkt.

1-2-2. Anschlußfeld


❼ 75 Ω Abschlußschalter
❻ Videoeingänge (VIDEO IN)
❽ Hilfsträgereingang (SC IN (PAL))
❺ Synchronsignalwähler (SERVO LOCK)
❾ Schalter für halbbildrichtige Farbträgerverkopplung (COLOR FRAMING)
❹ Synchronsignaleingang (EXT SYNC IN)
❿ Kopiereingang (DUB IN)
❸ Toneingangspegelwähler (AUDIO IN LEVEL)
⓫ Kopierausgang (DUB OUT)
❷ Eingangsimpedanzwähler (600 Ω)
⓬ Monitoranschluß (MONITOR)
⓭ HF-Ausgang (RF (OFF TAPE))
❶ Tonsignaleingänge (AUDIO IN)
⓮ Videoausgänge (VIDEO OUT)
⓯ Tonausgänge (AUDIO OUT)
⓰ Monitor-Tonausgänge (AUDIO OUT MONITOR)
⓱ Fernbedienungsanschluß 2 (REMOTE-2) (36pol)
㉔ Zeitcode-Eingang (TIME CODE IN)
㉓ Zeitcode-Ausgang (TIME CODE OUT)
⓲ Fernbedienungsanschluß 1 (REMOTE-1) (9pol)
㉒ TBC-Anschluß
㉑ Netzanschluß (AC IN)
⓳ Stundenanzeige (HOURS METER)
⓴ Spannungswähler

❶ Tonsignaleingänge (AUDIO IN) (XLR 3pol)
Über diese Buchsen werden die Tonsignale von den Mikrofonen oder von anderen Audiogeräten zugeleitet.

❷ Eingangsimpedanzwähler (600Ω)
Stehen die AUDIO IN LEVEL-Wähler ❸ auf HIGH, kann die Eingangsimpedanz an diesem Wähler wie folgt eingestellt werden.
ON: 600 Ohm
OFF: 10 kOhm

❸ Toneingangspegelwähler (AUDIO IN LEVEL)
Mit diesen Wählern kann die Empfindlichkeit der AUDIO IN-Anschlüsse ❶ eingestellt werden.
LOW: −60 dB (zum Anschließen von Mikrofonen).
HIGH: +4 dB (zum Anschließen anderer Geräte).

❹ Synchronsignaleingang (EXT SYNC IN) (BNC)
Zum Anschluß eines externen Synchronsignals (0,2 Vss – 5 Vss) oder eines Videosignals (1 Vss).

❺ Synchronsignalwähler (SERVO LOCK)
Zum Wählen des Bezugssignals.
AUTO: Stellen Sie den Wähler normalerweise in diese Stellung. Bei Aufnahmen wird dann das am VIDEO IN- oder DUB IN-Anschluß anliegende Signal als Bezugssignal herangezogen. Bei Wiedergabe wird das aus der Tabelle im Abschnitt „Bezugssignalwähler und Synchronsignalwähler" zu entnehmende Signal zum Bezugssignal.
EXT SYNC: In dieser Stellung wird das Gerät unabhängig von der Stellung des an der Vorderseite angebrachten MODE SELECT-Wählers extern synchronisiert.

❻ Videoeingänge (VIDEO IN) (BNC)
Zur Einspeisung eines FBAS-Signals.
Wenn beide Anschlüsse für Kettenschaltung verwendet werden, stellen Sie den 75Ω Abschlußschalter ❼ auf OFF.

❼ 75Ω Abschlußschalter
Dieser Schalter dient zum Abschließen der VIDEO IN-Anschlüsse ❻.
ON: Wenn einer der Anschlüsse verwendet wird.
OFF: Wenn beide Anschlüsse für Kettenschaltung verwendet werden.

❽ Hilfsträgereingang (SC IN (PAL)) (BNC)
Bei Wiedergabe wird diesem Eingang ein externes Hilfsträgersignal (4,43 MHz) zur Erzeugung des Chrominanzsignals zugeleitet.
Dieser Eingang ist mit einem Time-Base-Corrector zu verbinden.

❾ Schalter für halbbildrichtige Farbträgerverkopplung (COLOR FRAMING)
Dieser Schalter arbeitet nur bei automatischer Schnittaufnahme.
ON: Normalerweise diese Position verwenden. Der Schaltkreis für halbbildrichtige Farbträgerverkopplung arbeitet, wenn das Signal an den EXT SYNC IN-Anschluß ❹ oder VIDEO IN-Anschluß ❻ angeschlossen ist.
- Bei aktivierter halbbildrichtiger Farbträgerverkopplung ist die Schnittvoreinlaufzeit auf 10 Sekunden einzustellen.

OFF: Der Schaltkreis für halbbildrichtige Farbträgerverkopplung bleibt ausgeschaltet.
- Beim Schneiden mit dem BVT-500P kann der Schaltkreis für halbbildrichtige Farbträgerverkopplung nicht aktiviert werden, wenn der DUB IN-Anschluß des Aufnahmegeräts und der DUB OUT-Anschluß des BVT-500P verbunden sind.
  Verbinden Sie den VIDEO IN-Anschluß des Aufnahmegeräts mit dem VIDEO OUT-Anschluß des BVT-500P.

❿ Kopiereingang (DUB IN) (7pol)
Zur Zuleitung des Video-Überspielsignals von einem U-matic-Videorecorder. Verbinden Sie diesen Eingang über das mitgelieferte 7pol Überspielkabel mit dem DUB OUT-Anschluß des U-matic-Videorecorders.

⓫ Kopierausgang (DUB OUT) (7pol)
Liefert das Video-Überspielsignal für einen U-matic-Videorecorder.
Verbinden Sie diesen Ausgang über das mitgelieferte 7pol Überspielkabel mit dem DUB IN-Anschluß des U-matic-Videorecorders.

⓬ Monitoranschluß (MONITOR) (8pol)
Verbinden Sie diesen Anschluß über ein Monitor-Verbindungskabel (Sonderzubehör) mit dem Videorecorder-Anschluß (8pol) eines Videomonitors. Video- und Tonsignale werden über das gleiche Kabel übertragen. Die Anwahl der Tonsignale erfolgt am AUDIO MONITOR-Wähler ⓲ und MIXING SELECT-Schalter ⓬ am Bedienungspult.

⓭ HF-Ausgang (RF (OFF TAPE)) (BNC)
An diesem Anschluß liegt das undemodulierte FM-Signal an. Hier kann ein externer Dropout-Kompensator angeschlossen werden, wenn der eingebaute Dropout-Kompensator nicht verwendet wird.

⓮ Videoausgänge (VIDEO OUT) (BNC)
Liefert das FBAS-Signal.
Verbinden Sie diesen Ausgang mit dem Videoeingang eines Videorecorders oder Videomonitors.

⑮ Tonausgänge (AUDIO OUT) (XLR 3pol)
An diesen Ausgängen liegen die Tonsignale an, deren Pegel an den AUDIO LEVEL PB-Reglern ⑭ am Bedienungspult eingestellt werden kann. Verbinden Sie diese Ausgänge mit den Toneingängen eines weiteren Videorecorders.

⑯ Monitor-Tonausgang (AUDIO OUT MONITOR) (XLR 3pol)
Zum Anschließen der Tonüberwachungsanlage. Die Anwahl des Tonsignals erfolgt am AUDIO MONITOR-Wähler ⑬ und am MIXING SELECT-Wähler ⑫ des Bedienungspultes.

⑰ Fernbedienungsanschluß 2 (REMOTE-2) (36pol)
Schließen Sie hier eine Schnitt-Steuereinheit der BVE-Serie (z.B. BVE-500ACE, -1000P, -5000P etc.) über ein gesondert lieferbares 36pol Fernbedienungskabel an.

⑱ Fernbedienungsanschluß 1 (REMOTE-1) (9pol)
Über das mitgelieferte 9pol Fernbedienungskabel kann hier ein weiterer BVU-850P oder eine Schnitt-Steuereinheit (z.B. BVE-800) angeschlossen werden.

⑲ Stundenanzeige (HOURS METER)
Diese Anzeige zeigt die gesamte Zeit an, die das Gerät im Aufnahme-, Wiedergabe-, Schnitt-, Suchlauf-, Schnellvorlauf- oder Rücklaufbetrieb verwendete (bis maximal 1000 Stunden).

⑳ Spannungswähler
Einstellbar auf 100, 120, 220 oder 240V Wechselspannung. Stellen Sie diesen Wähler auf Ihre örtliche Netzspannung ein.

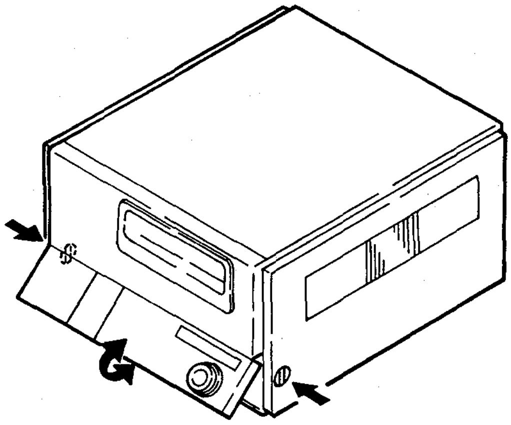
㉑ Netzanschluß (AC IN)
Schließen Sie hier das mitgelieferte Netzkabel an, und stecken Sie den Netzstecker in eine Wandsteckdose.

㉒ TBC-Anschluß (18pol)
Zum Anschließen eines Time-Base-Correctors wie z.B. der BVT-810P.

㉓ Zeitcode-Ausgang (TIME CODE OUT) (BNC)
An diesem Anschluß liegt das Wiedergabe-Zeitcode-Signal an. Es kann ein Zeitcodeleser angeschlossen werden. Bei Aufnahme- und E-zu-E-Betrieb liegt hier das Zeitcode-Signal vom TIME CODE IN-Anschluß ㉔ an.

㉔ Zeitcode-Eingang (TIME CODE IN) (BNC)
Zur Aufzeichnung des Zeitcode-Signals kann hier ein Zeitcodegenerator angeschlossen werden.

Positionierung des Bedienungspultes



1 Die Arretierschrauben auf beiden Seiten mit einer Münze oder einem großen Schraubenzieher öffnen.

2 Das Bedienungspult kann nun in sechs Stufen bis zu 90° geschwenkt werden.

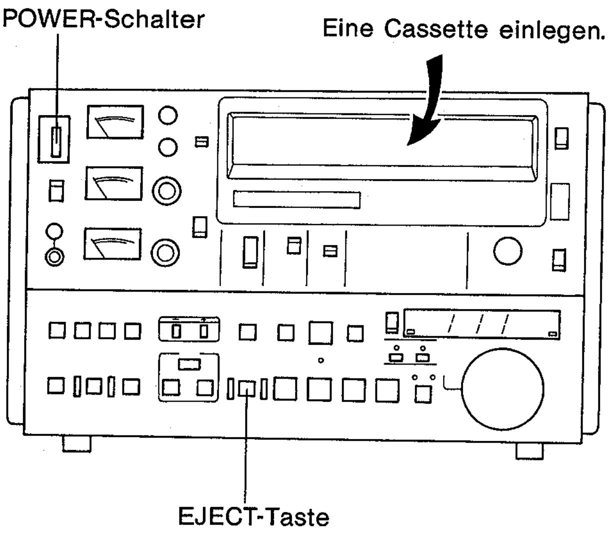
3 Nach der Positionierung die Schraube wieder festziehen.

- Das Bedienungspult kann auch abgenommen werden, so daß über ein Kabel eine Fernbedienung möglich ist. Genaueres dazu siehe Abschnitt 2.

1-3. EINLEGEN UND HERAUSNEHMEN DER CASSETTE

Verwendbare Cassetten
3/4-Zoll-Cassetten bzw. KCA, KCS, KSP, KSP-S o.ä.

Einlegen der Cassette
Stellen Sie den POWER-Schalter auf ON und legen Sie die Cassette ein. Die Cassette fährt automatisch ein, das Band wird um die Kopftrommel geschlungen, die Kopftrommel beginnt zu rotieren, und man erhält ein Standbild.


POWER-Schalter
Eine Cassette einlegen.
EJECT-Taste

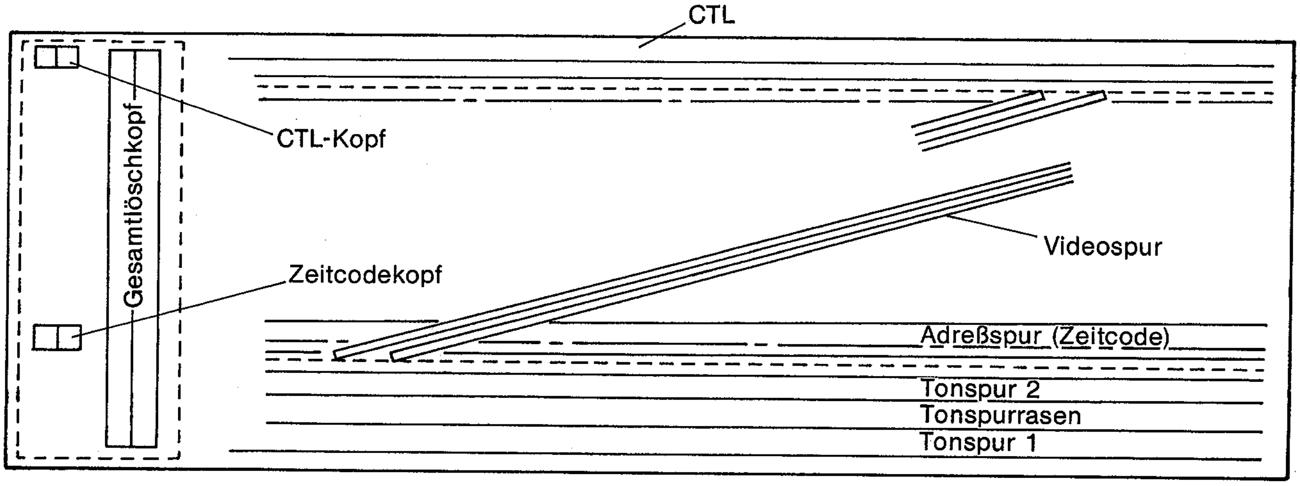
Löschschutz einer Aufnahme
Durch Herausnehmen der kleinen runden Kappe an der Unterseite der Cassette kann eine Aufnahme vor versehentlichem Löschen geschützt werden. Wird die Kappe wieder eingesetzt, kann später jederzeit wieder auf das Band aufgenommen werden.

- Die Abbildung unten zeigt das Spurschema.

Herausnehmen der Cassette
Drücken Sie hierzu bei eingeschaltetem Gerät die EJECT-Taste.
Das Band wird dann freigegeben und die Cassette automatisch ausgeworfen.

- Nehmen Sie auf jeden Fall nach der Verwendung die Cassette heraus.

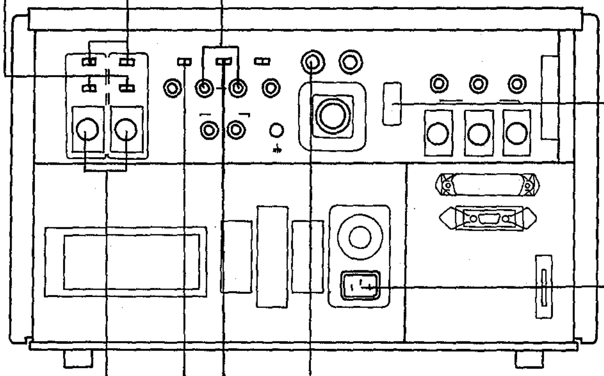
Hinweis
Wird ein zu weit gespultes Band eingelegt, schaltet das Gerät automatisch auf Vorspul- oder Rückspulbetrieb, um eine Beschädigung des Vorspannbandes durch Kopfberührung zu verhindern. Wenn bei einer KCA-Cassette das Vorspannband versehentlich herausausgezogen wurde, so wird die Cassette nach dem Einlegen automatisch wieder ausgeworfen. Drehen Sie in diesem Fall die Vorratsspule per Hand, so daß das Vorspannband vollkommen aufgespult ist, und legen Sie die Cassette erneut ein.


CTL
CTL-Kopf
Gesamtlöschkopf
Videospur
Zeitcodekopf
Adreßspur (Zeitcode)
Tonspur 2
Tonspurrasen
Tonspur 1

1-4. AUFNAHME

1-4-1. Vorbereitungen

Rückseite



AUDIO IN LEVEL-Wähler: LOW oder HIGH
Für Mikrofoneingang auf LOW stellen.
Für Line-Eingang auf HIGH stellen.

Aufnahme des FBAS-Signals
An VIDEO IN-Buchse anschließen. (Videoeingang für Videokamera, Videorecorder usw.)

600Ω Eingangsimpedanzwähler: ON oder OFF
Stehen die AUDIO IN LEVEL-Wähler auf HIGH, diese Wähler wie folgt einstellen:
Für 600-Ohm-Eingang auf ON stellen.
Für 10-kOhm-Eingang auf OFF stellen.

Monitorausgang

Netzanschluß

Toneingang

SERVO LOCK-Wähler: AUTO
Zur Synchronisierung mit externem Bezugssignal auf EXT stellen.

75Ω Abschlußschalter: ON
Bei Verwendung des Durchschleifausgangs auf OFF stellen.

Überspielen des Videosignals
An DUB IN-Buchse anschließen. (Videoeingang für U-matic- oder Betacam-Videorecorder.)

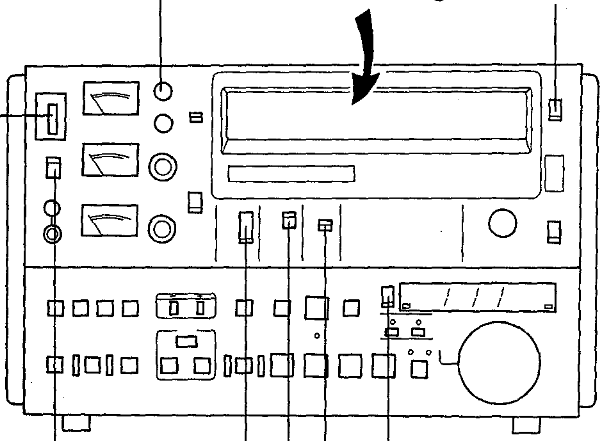
Vorderseite

TRACKING-Regler: FIXED

Eine Cassette einlegen.

REMOTE/LOCAL-Wähler: LOCAL

POWER-Schalter: ON



AUDIO MONITOR-Wähler: MIX

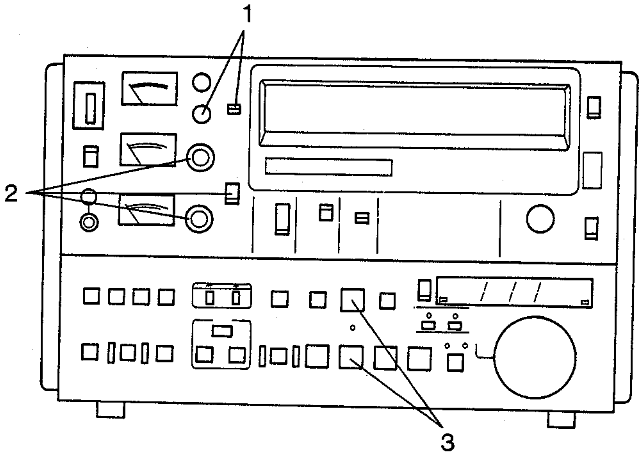
MIXING SELECT-Schalter: OFF

MODE SELECT-Schalter: NORMAL

PB.PB/EE-Wähler: PB/EE

INPUT SELECT-Schalter: LINE oder DUB
Für ein an die VIDEO IN-Buchsen angeschlossenes FBAS-Signal auf LINE stellen.
Zum Überspielen eines Videosignals von der DUB IN-Buchse auf DUB stellen.

1-4-2. Betrieb



1. Videopegel einstellen.
   Automatische Einstellung
   Stellen Sie den VIDEO LEVEL-Schalter auf AUTO. Der Aufnahmepegel wird dann automatisch eingestellt.
   Manuelle Einstellung
   Stellen Sie den VIDEO LEVEL-Schalter auf MAN und stellen Sie den VIDEO LEVEL-Regler unter Beobachtung des Wellenformmonitors so ein, daß das Videoeingangssignal richtigen Pegel aufweist.

2. Tonaufnahmepegel einstellen.
   Stellen Sie den AUDIO LIMITER-Schalter auf OFF. Stellen Sie die AUDIO LEVEL-Regler für Tonsignal 1 und 2 so ein, daß die Zeiger der AUDIO LEVEL-Meter maximal ca. bis Null ausschlagen.
   Tonaufzeichnung mit Begrenzer
   Nachdem die Einstellung wie oben beschrieben ausgeführt wurde, stellen Sie den AUDIO LIMITER-Schalter auf ON.

3. PLAY- und REC-Tasten gleichzeitig drücken.
   Die Aufnahme beginnt, und die REC- sowie PLAY-Tasten leuchten auf. Sobald die Servoverkopplung erreicht ist, leuchtet die SERVO-Lampe. (Es dauert einige Sekunden, bis der Synchronlauf von Kopftrommel und Capstan erreicht ist. Das Wiedergabebild kann in dieser Zeitspanne kurzzeitig gestört sein.)

Stoppen der Aufnahme
Drücken Sie die STOP-Taste.
Die Aufnahme stoppt und die STOP-Taste leuchtet auf.

- Sobald das Band am Ende angelangt ist, spult es automatisch zurück und stoppt dann am Anfang.

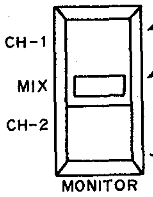
Überwachung des Video- und Tonsignals

Bild und Ton des Videomonitors können am PB.PB/EE-Wähler gewählt werden: Wiedergegebenes Video/Tonsignal (PB) oder Eingangs-Video/Tonsignal in der E-zu-E-Funktion (EE).

Betriebsart Stellung des Wählers	Cassette ausgeworfen	Band eingefädelt oder freigegeben	Schnellvor- oder Rücklauf	Stop	Wenn der Bereitschaftsbetrieb ausgeschaltet wird
PB	EE	EE	PB	PB	PB
PB/EE	EE	EE	EE	EE	EE

Der mitzuhörende Tonkanal wird am AUDIO MONITOR-Wähler gewählt.

AUDIO MONITOR



Tonkanal 1

Beide Kanäle über die HEADPHONES-Buchse und ein Mischsignal aus beiden Kanälen über AUDIO OUT MONITOR- sowie MONITOR-Anschluß.

Tonkanal 2

Wahl des Bezugssignals

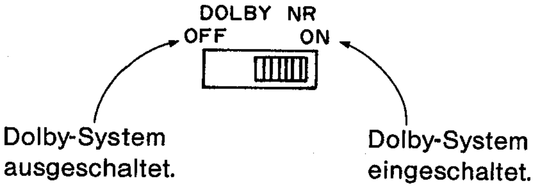
Das Bezugssignal für die Servoverkopplung wird am MODE SELECT-Schalter und SERVO LOCK-Wähler gewählt.

Stellung des SERVO LOCK-Wählers		AUTO			EXT SYNC	
Betriebsart des Videorecorders		Aufnahme	Wiedergabe, E-E		Aufnahme	Wiedergabe, E-E
Stellung des MODE SELECT-Schalters		EDIT, NORMAL, TBC	EDIT	NORMAL TBC	EDIT, NORMAL, TBC	
Eingangssignal an						
VIDEO IN oder DUB IN	EXT SYNC IN					
Ja	Ja	VIDEO	VIDEO (EXT SYNC)*	EXT SYNC (VIDEO)**	EXT SYNC IN	
Ja	Nein	VIDEO	VIDEO (Internes Synchronsignal)*		VIDEO	VIDEO (Internes Synchronsignal)*
Nein	Ja		EXT SYNC IN			
Nein	Nein		Internes Synchronsignal			

* Die Angaben in Klammern geben das Bezugssignal für den Fall an, daß eine Schnitt-Steuereinheit (BVE-500, BVE-500ACE, BVE-800) oder ein weiterer BVU-850P angeschlossen ist und sich das Wiedergabegerät nicht im Wiedergabebetrieb befindet.

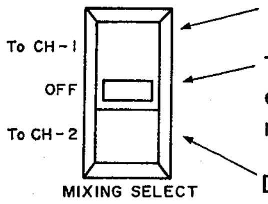
** Das VIDEO-Signal erhält man als Bezugssignal, wenn eine der ASSEMBLE- bzw. INSERT-Tasten gedrückt ist (Taste leuchtet) und sich der Videorecorder im Wiedergabebetrieb befindet, oder wenn die EDIT-Taste leuchtet.

Aufnahme mit Dolby-Rauschverminderung
Das Dolby-Rauschverminderungssystem kann beim Aufnehmen am DOLBY NR-Schalter ein- und ausgeschaltet werden.



Durch das Dolby-System werden niederpegelige Signale hoher Frequenz, die normalerweise von Bandrauschen überdeckt würden, angehoben, so daß sie wesentlich über dem Bandrauschen liegen. Bei der Wiedergabe werden diese Tonsignale dann auf den Ursprungspegel abgesenkt, wobei auch das Rauschen um den gleichen Betrag vermindert wird. Normalerweise werden beide Tonkanäle vom Dolby-System aufbereitet. Um nur einen Kanal aufzubereiten, siehe unter Abschnitt 2.

Aufnahme des Mischsignals aus Tonkanal 1 und 2
Tonsignale 1 und 2 können gemischt aufgenommen werden. Bei folgender Einstellung des MIXING SELECT-Schalters kann das Mischsignal entweder auf Tonspur 1 oder 2 aufgezeichnet werden.

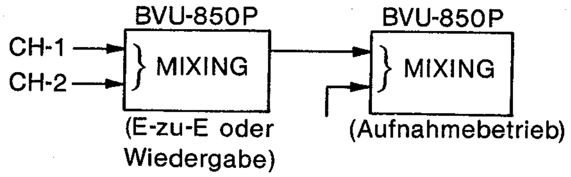


Das Mischsignal wird auf Spur 1 aufgezeichnet. (Auf Spur 2 wird Tonsignal 2 aufgezeichnet.)

Tonsignal 1 und 2 werden auf den entsprechenden Spuren aufgezeichnet.

Das Mischsignal wird auf Spur 2 aufgezeichnet. (Auf Spur 1 wird Tonsignal 1 aufgezeichnet.)

- Tonsignal 1 und 2 werden beim Aufnehmen mit gleichem Pegel gemischt.
- Beim Anschluß von zwei BVU-850P können drei Tonsignale gemischt aufgenommen werden.



Bandschutz
Bleibt das Gerät länger als 8 Minuten in der Stop-Funktion, so wird die Bereitschafts-Funktion automatisch abgeschaltet (Kopftrommel bleibt stehen), um Band und die Videoköpfe zu schonen. Wenn das Band bei Suchlaufbetrieb für mehr als 8 Minuten gestoppt wird, bewegt es sich mit 1/30 Normalgeschwindigkeit in Vorwärtsrichtung. Zum Umschalten in die gewünschte Betriebsart (außer Stop-Funktion) drücken Sie dann die entsprechende Taste. Durch Drücken der STANDBY-Taste schaltet das Gerät in die Stop-Funktion.

Kondenswasseransammlung
Bei Ansammlung von Kondenswasser bleiben die Kopftrommel- und Capstan-Motoren stehen, die Cassette wird ausgeworfen, und die AUTO OFF-Lampe ❻ an der Vorderseite leuchtet auf. Danach dreht sich die Kopftrommel dann weiter. Warten Sie mit dem Betrieb des Geräts jedoch noch, bis die AUTO OFF-Lampe nach ca. 10 Minuten erlischt.

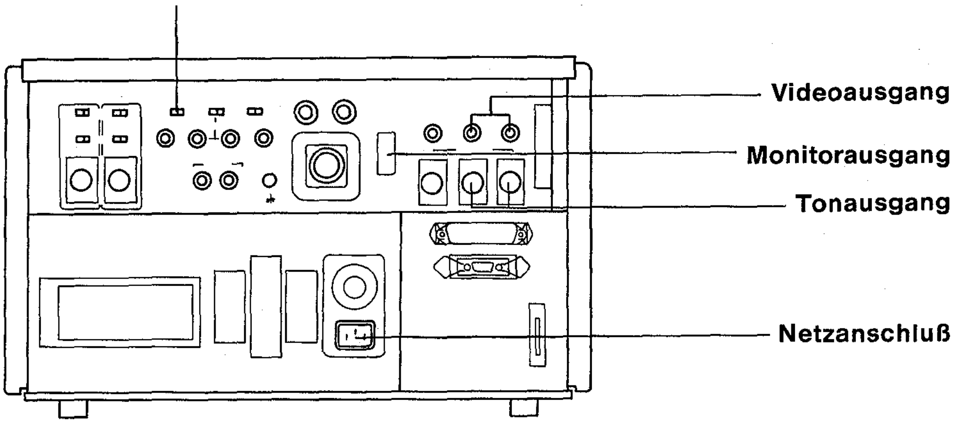
Zeitcode-Aufzeichnung
Schließen Sie zur gleichzeitigen Aufzeichnung des Zeitcodes einen EBU-Zeitcodegenerator am TIME CODE IN-Anschluß an. Da beim Aufzeichnen des Zeitcodes ein Begrenzer wirksam ist, braucht keine Pegeleinstellung vorgenommen zu werden. Beim Aufnehmen leuchtet die TIME CODE-Lampe.

1-5. WIEDERGABE

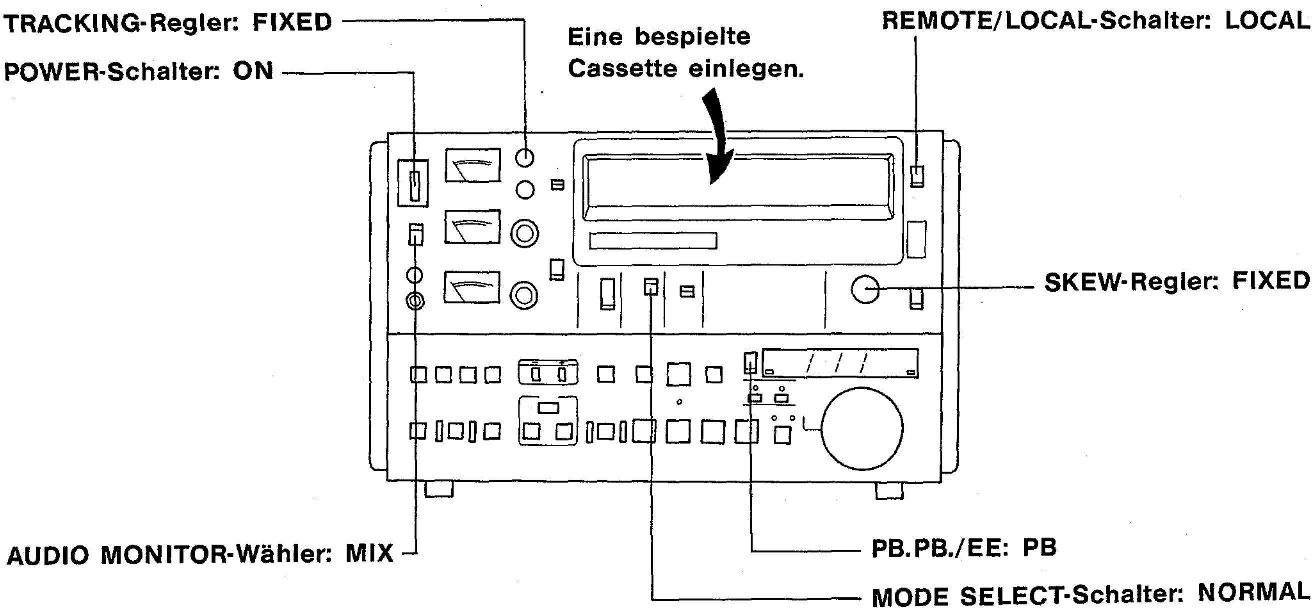
1-5-1. Vorbereitungen

Rückseite

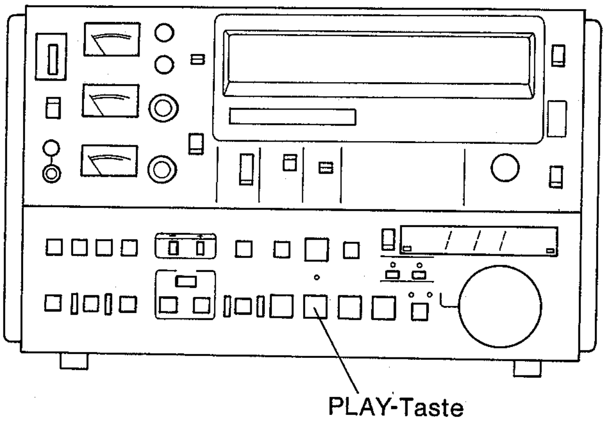
SERVO LOCK-Wähler: AUTO
Für externe Synchronisation auf EXT SYNC stellen.


Videoausgang
Monitorausgang
Tonausgang
Netzanschluß

Vorderseite


TRACKING-Regler: FIXED
POWER-Schalter: ON
Eine bespielte Cassette einlegen.
REMOTE/LOCAL-Schalter: LOCAL
SKEW-Regler: FIXED
AUDIO MONITOR-Wähler: MIX
PB.PB./EE: PB
MODE SELECT-Schalter: NORMAL

1-5-2. Betrieb



Drücken Sie die PLAY-Taste.
Die Wiedergabe beginnt.
Nach einigen Sekunden ist die Servoverriegelung des Capstans erreicht, und die SERVO-Lampe leuchtet auf. Solange noch keine Servoverriegelung erreicht ist, kann das Wiedergabebild gestört sein.
Während der Wiedergabe leuchtet die PLAY-Taste und die SERVO-Lampe auf.

Stoppen der Wiedergabe
Drücken Sie die STOP-Taste.
Die Wiedergabe stoppt dann, und die STOP-Taste leuchtet.

Einstellung der TRACKING- und SKEW-Regler
Normalerweise sind beide Regler auf FIXED zu stellen. Ist das Wiedergabebild gestört, stellen Sie den TRACKING-Regler so ein, daß das VIDEO/RF-Meter möglichst weit ausschlägt.
Wenn am oberen Bilderrand Störungen auftreten, stellen Sie den SKEW-Regler so ein, daß bestmögliche Bildqualität erhalten wird.

Hinweis
Nach der Wiedergabe des Bandes stellen Sie den TRACKING-Regler stets auf FIXED zurück.
Beim Aufnehmen wird der SKEW-Regler automatisch auf FIXED zurückgestellt.

Einstellung des Tonaufnahmepegels
Stellen Sie den AUDIO LEVEL-Regler so ein, daß die VU-Meter von Kanal 1 und 2 maximal bis ca. Null ausschlagen. Eine Einstellung des Videopegels ist nicht erforderlich.

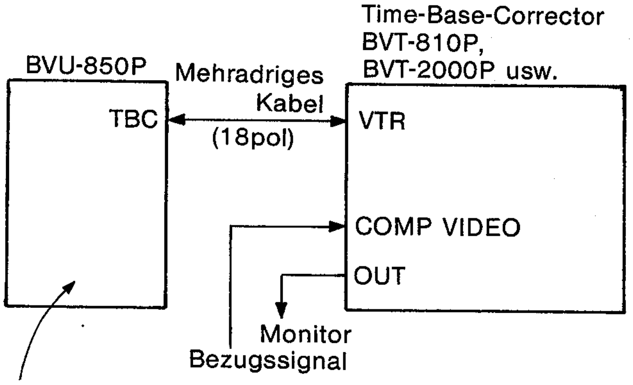
Automatische Dolby-Erkennung
Bei der Wiedergabe eines mit Dolby bespielten Bandes wird automatisch der Dolby-Schaltkreis aktiviert.
Wenn nur ein Kanal mit Dolby aufgezeichnet wurde, so werden bei der Wiedergabe jedoch beide Kanäle vom Dolby-System aufbereitet. Um nur einen Kanal vom Dolby-System aufbereiten zu lassen, siehe unter Abschnitt 2.

Zeitcode-Wiedergabe
Wenn auf dem Band ein Zeitcode aufgezeichnet ist, kann dieser beim Wiedergeben am TIME CODE OUT-Anschluß (Anschlußfeld) abgegriffen werden.
Zum Auslesen des Zeitcodes ist ein EBU-Zeitcodeleser an dem TIME CODE OUT-Anschluß anzuschließen. Wärend der Wiedergabe leuchtet die TIME CODE-Lampe ❻ auf.

Überwachung des Video- und Tonwiedergabesignals
Diese Überwachung kann genau wie beim Aufnehmen durchgeführt werden. Siehe Seite 1-16.

Wiedergabe mit Time-Base-Corrector

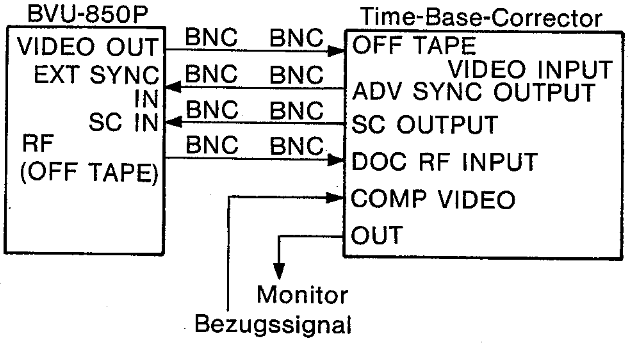
- Anschluß eines anderen Time-Base-Correctors, der mit 18pol Videorecorder-Anschluß ausgestattet ist.


Time-Base-Corrector
BVT-810P,
BVT-2000P usw.
BVU-850P
Mehradriges Kabel (18pol)
TBC
VTR
COMP VIDEO
OUT
Monitor
Bezugssignal

Den MODE SELECT-Schalter an der Vorderseite auf TBC stellen.

Hinweis
Stellen Sie sicher, daß an den DUB-Anschlüssen kein Anschluß vorgenommen wurde.

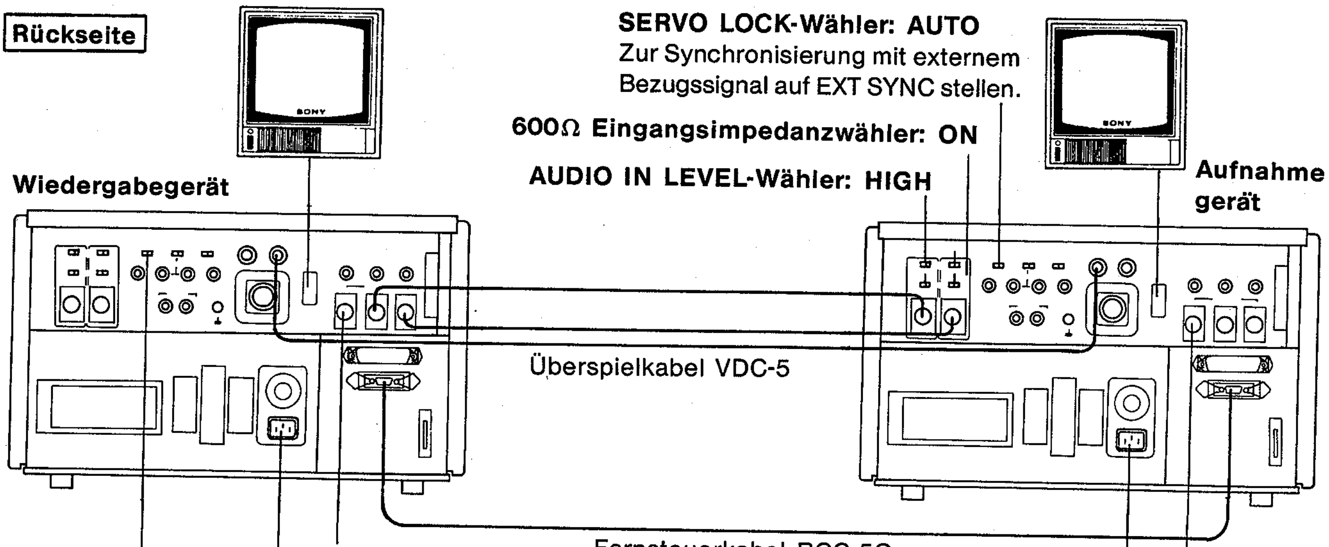
- Anschluß eines anderen Time-Base-Correctors, der nicht mit 18pol Videorecorder-Anschluß ausgestattet ist.


BVU-850P
Time-Base-Corrector
VIDEO OUT
EXT SYNC IN
SC IN
RF (OFF TAPE)
BNC
BNC
BNC
BNC
BNC
BNC
BNC
BNC
OFF TAPE VIDEO INPUT
ADV SYNC OUTPUT
SC OUTPUT
DOC RF INPUT
COMP VIDEO
OUT
Monitor
Bezugssignal

1-6. SCHNEIDEN

1-6-1. Vorbereitung

Rückseite



Wiedergabegerät
Aufnahmegerät
Überspielkabel VDC-5
Fernsteuerkabel RCC-5G
Monitorausgang
Netzanschluß
Monitorausgang
Netzanschluß

SERVO LOCK-Wähler: AUTO
Zur Synchronisierung mit externem Bezugssignal auf EXT SYNC stellen.

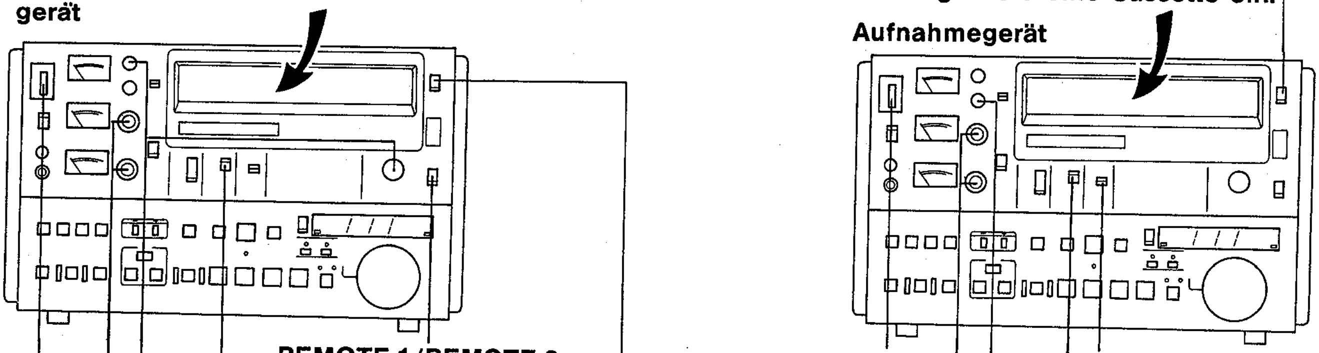
600Ω Eingangsimpedanzwähler: ON

AUDIO IN LEVEL-Wähler: HIGH

SERVO LOCK-Wähler: AUTO
Zur Synchronisierung mit einem externen Bezugssignal bzw. Studio-Bezugssynchronsignal auf EXT stellen.

REMOTE/LOCAL-Wähler: LOCAL
Die Tasten des Aufnahmegeräte-Bedienungspultes steuern sowohl das Wiedergabe- als auch das Aufnahmegerät.

Vorderseite



Wiedergabegerät
Aufnahmegerät

Legen Sie eine bespielte Videocassette ein.

Legen Sie eine Cassette ein.

REMOTE-1/REMOTE-2-Wähler: REMOTE-1

REMOTE/LOCAL-Wähler: REMOTE
Die Tasten des Wiedergabegeräte-Bedienungspultes arbeiten nicht.

MODE SELECT-Schalter: EDIT
Falls erforderlich, stellen Sie TRACKING- und SKEW-Regler wie auf Seite 1-19 gezeigt ein.
Stellen Sie den Tonpegel ein. (Siehe Seite 1-19.)

POWER-Schalter: ON

Zur Einstellung der anderen Schalter und Regler siehe Seite 1-18.

POWER-Schalter: ON

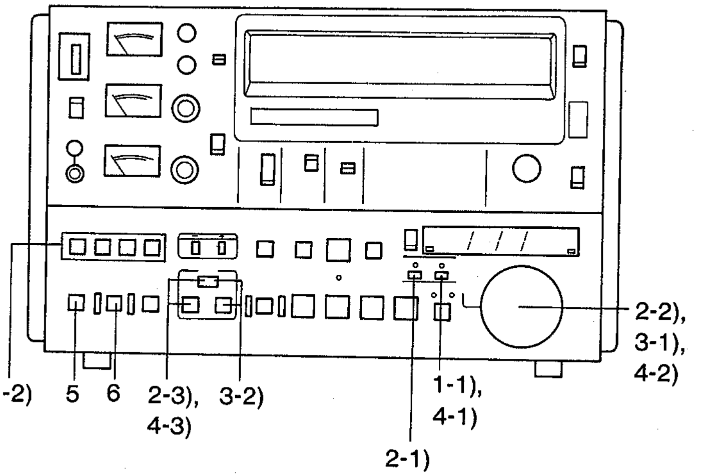
INPUT SELECT-Schalter: DUB
Ist das Videosignal am VIDEO IN-Anschluß angeschlossen, stellen Sie den Schalter auf LINE.

MODE SELECT-Schalter: EDIT

Den Videoaufnahmepegel einstellen. (Siehe Seite 1-15.)
Den Tonaufnahmepegel einstellen. (Siehe Seite 1-15.)

Zur Einstellung der anderen Bedienungselemente siehe Seite 1-14.

1-6-2. Betrieb



1. Wählen Sie die Schnittbetriebsart.

   Anfügschnitt

   1) Drücken Sie die RECORDER-Taste. Die RECORDER-Lampe leuchtet auf.
   2) Drücken Sie die ASSEMBLE-Taste. Die ASSEMBLE-Taste leuchtet auf.

   Einfügschnitt

   1) Drücken Sie die RECORDER-Taste. Die RECORDER-Lampe leuchtet auf.
   2) Wählen Sie das gewünschte Eingangssignal durch Drücken einer oder aller INSERT-Tasten am Aufnahmegerät.
      Die jeweiligen Tasten leuchten auf.

   Zum Abschalten der gewählten Betriebsart

   Drücken Sie die betreffende Taste erneut.

2. IN-Punkt des Wiedergabegeräts festlegen.
   1) Drücken Sie die PLAYER-Taste.
      Die PLAYER-Lampe leuchtet auf, und die IN- und OUT-Tasten beginnen, langsam zu blinken.
   2) Suchen Sie mit dem Suchlaufknopf den IN-Punkt auf.
   3) Drücken Sie gleichzeitig die IN- und die ENTRY-Taste.
      Die IN-Taste leuchtet auf, und der Zählerstand dieses Punktes wird als IN-Punkt abgespeichert.

Hinweis

Der erste IN-Punkt sollte mindestens 10 Sekunden vom Bandanfang entfernt liegen.

3. OUT-Punkt des Wiedergabegeräts festlegen.
   1) Suchen Sie den OUT-Punkt mit dem Suchlaufknopf auf.
   2) Drücken Sie gleichzeitig die OUT- und die ENTRY-Taste.
      Die OUT-Taste leuchtet auf, und der Zählerstand dieses Punktes wird als OUT-Punkt abgespeichert.

Hinweis

Der IN-Punkt muß hinter dem OUT-Punkt liegen. Wird ein vor dem OUT-Punkt liegender IN-Punkt eingegeben, so wird der IN-Punkt gelöscht und der automatische Schnitt wird nicht richtig ausgeführt.

4. IN-Punkt des Aufnahmegeräts festlegen.
   1) Drücken Sie die RECORDER-Taste.
      Die RECORDER-Lampe leuchtet auf, und die IN-Taste beginnt, langsam zu blinken.
   2) Suchen Sie den IN-Punkt mit dem Suchlaufknopf auf.
   3) Drücken Sie gleichzeitig die IN- und die ENTRY-Taste.
      Die IN-Taste leuchtet, und der Zählerstand dieses Punktes wird als IN-Punkt abgespeichert.
      Wurde der OUT-Punkt auf dem Wiedergabegerät eingegeben, so ist keine Eingabe des OUT-Punktes am Aufnahmegerät erforderlich.

5. Durch Drücken der PREVIEW-Taste kann der Schnitt probeweise ausgeführt werden.
   Die PREVIEW-Taste leuchtet beim Drücken auf, und auch auf dem Monitor des Aufnahmegeräts ist das Bild des Wiedergabegeräts in E-zu-E-Betrieb zwischen den IN- und OUT-Punkten zu sehen.
   Falls erforderlich, korrigieren Sie nun die Schnittpunkte und drücken Sie dann die PREVIEW-Taste erneut.

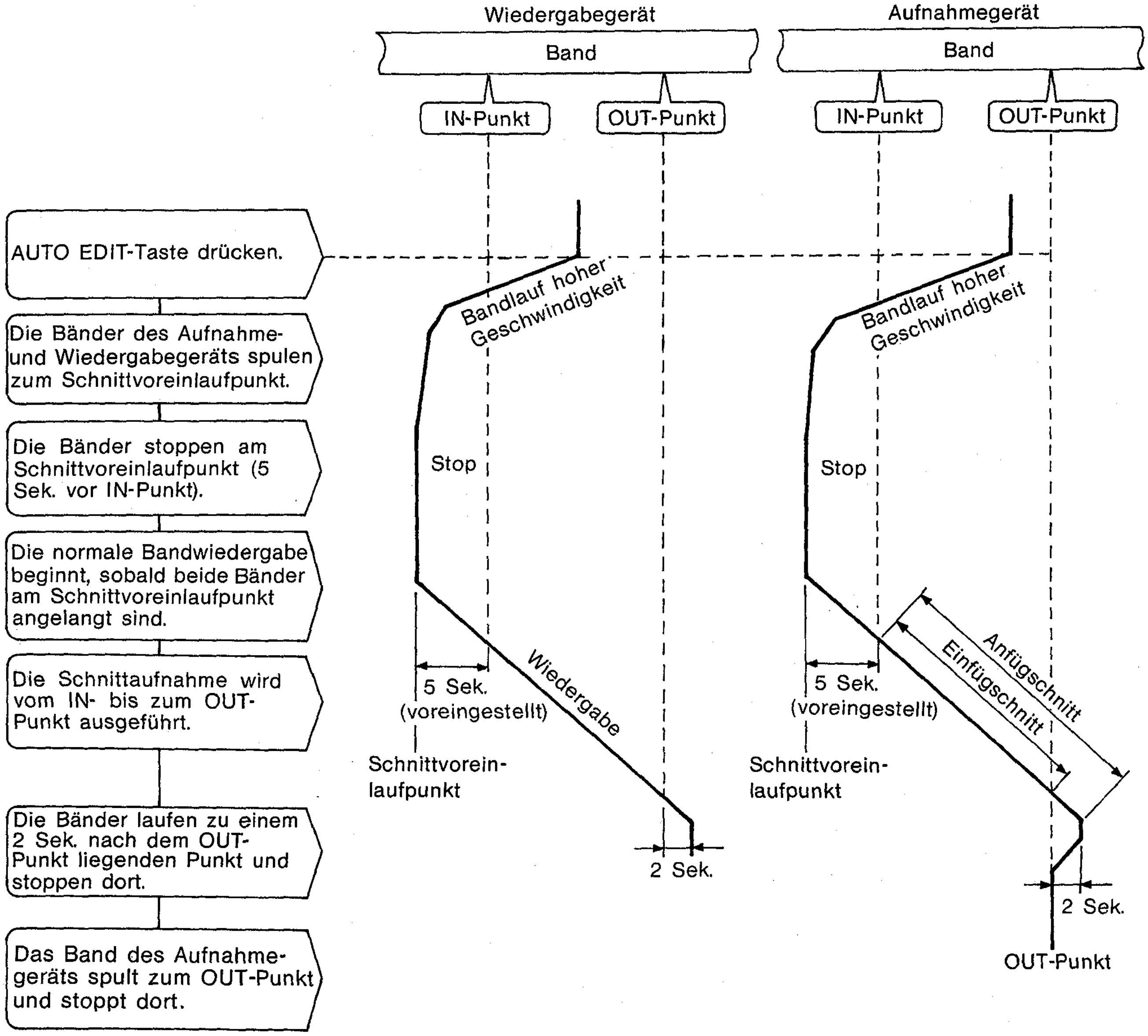
   Stoppen des Bandes während der Vorschau

   Drücken Sie die STOP-Taste und anschließend die PREROLL-Taste, um das Band zum Schnittvoreinlaufpunkt zurückzuspulen.

   Starten des automatischen Schnitts während der Vorschau

   Drücken Sie die AUTO EDIT-Taste.
   Das Band spult zum Schnittvoreinlaufpunkt, und die automatische Schnittaufnahme beginnt.

6. Nach Festlegung der Schnittpunkte drücken Sie die AUTO EDIT-Taste. Die Schnittaufnahme wird dann wie unten gezeigt ausgeführt.


Wiedergabegerät
Band
IN-Punkt
OUT-Punkt
Aufnahmegerät
Band
IN-Punkt
OUT-Punkt
AUTO EDIT-Taste drücken.
Die Bänder des Aufnahme- und Wiedergabegeräts spulen zum Schnittvoreinlaufpunkt.
Die Bänder stoppen am Schnittvoreinlaufpunkt (5 Sek. vor IN-Punkt).
Die normale Bandwiedergabe beginnt, sobald beide Bänder am Schnittvoreinlaufpunkt angelangt sind.
Die Schnittaufnahme wird vom IN- bis zum OUT-Punkt ausgeführt.
Die Bänder laufen zu einem 2 Sek. nach dem OUT-Punkt liegenden Punkt und stoppen dort.
Das Band des Aufnahmegeräts spult zum OUT-Punkt und stoppt dort.
Bandlauf hoher Geschwindigkeit
Stop
5 Sek. (voreingestellt)
Schnittvoreinlaufpunkt
Wiedergabe
2 Sek.
Bandlauf hoher Geschwindigkeit
Stop
5 Sek. (voreingestellt)
Schnittvoreinlaufpunkt
Anfügschnitt
Einfügschnitt
2 Sek.
OUT-Punkt

Überprüfung des Schnittresultats

Nach der Schnittaufnahme kann durch Drücken der REVIEW-Taste das Schnittresultat auf dem Monitor des Aufnahmegeräts überprüft werden. Nach dem Rückschaubetrieb stoppt das Band am OUT-Punkt. Zum Abbrechen des Rückschaubetriebs drücken Sie die STOP-Taste.

Bildüberwachung während der Schnittaufnahme

Während der Schnittaufnahme kann das zwischen 10 Sekunden vor dem IN-Punkt und 2 Sekunden nach dem OUT-Punkt liegende Material auf dem an das Aufnahmegerät angeschlossenen Monitor über-wacht werden.

Fehlt beim Einfügbetrieb ein Teil des CTL-Signals auf dem Band des Aufnahmegeräts, so erscheint das Wiedergabebild des Aufnahmegeräts auf dem Monitor, und die Schnittaufnahme wird an diesem Teil nicht durchgeführt.

Stop während der Schnittaufnahme

Zum Stoppen der Aufnahme vor Erreichen des OUT-Punktes drücken Sie gleichzeitig die OUT- und die ENTRY-Taste.

Am Ende der Schnittaufnahme...

Wenn die Schnittaufnahme einer Szene beendet ist, suchen Sie die IN- und OUT-Punkte der nächsten Szene, und geben Sie diese wie auf den vorigen Seiten beschrieben ein. Der OUT-Punkt einer Szene kann automatisch zum nächsten IN-Punkt des Aufnahmegeräts gemacht werden.

Aufsuchen und Festlegen eines Schnittpunktes

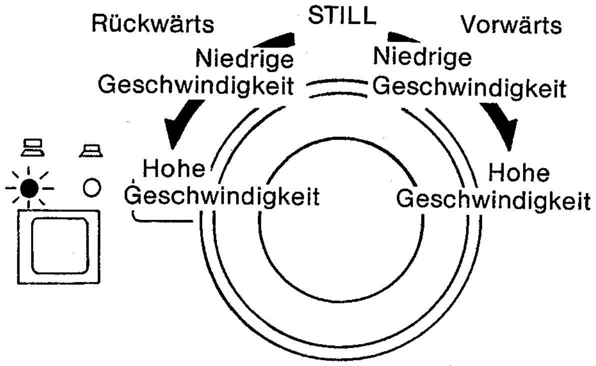
Bei einem KSP-Band muß zunächst auf Wiedergabe geschaltet werden, bevor mit dem Suchlaufbetrieb begonnen wird, da sonst der Formaterkennungsschaltkreis nicht richting arbeitet.

Drehen Sie den Suchlaufknopf zum Aufsuchen eines Schnittpunktes nach rechts oder links. Wenn die RECORDER-Lampe leuchtet, wird der Punkt auf dem Aufnahmegerät gesucht, und wenn die PLAYER-Lampe leuchtet, wird der Punkt auf dem Wiedergabegerät gesucht. Legen Sie die Schnittpunkte unter Beobachtung der Monitorbilder fest. Wenn die SHUTTLE-Lampe nicht leuchtet, drücken Sie den Suchlaufknopf hinein.

1. Schalten Sie den Videorecorder auf Shuttle-Betrieb (SHUTTLE-Lampe leuchtet), und suchen Sie den gewünschten Punkt mit dem Suchlaufknopf auf.
   Wird der Knopf über den Klickpunkt hinausgedreht, erhält man zehnfache Normalgeschwindigkeit. Bei Erreichen zehnfacher Normalgeschwindigkeit wird das Bild kurzzeitig unterbrochen und gestört.

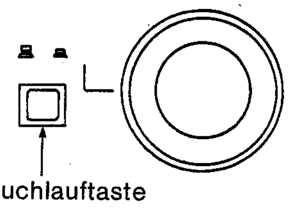
Hinweis

Nach dem Einschalten des Geräts ist der Knopf stets zunächst in die Mittelposition zu stellen.



2. Drücken Sie den Knopf hinein, um auf Jog-Betrieb zu schalten (JOG-Lampe leuchtet auf).
3. Suchen Sie den Schnittpunkt durch Drehen des Knopfes exakt auf. Die Wiedergabegeschwindigkeit hängt nun von der Drehgeschwindigkeit des Knopfes ab.

Verwendung der Suchlauftaste



Während des Betriebs kann das Gerät durch einfaches Drehen des Suchlaufknopfes auf Sucnlauf geschaltet werden, ohne daß die Suchlauftaste gedrückt wird. Die Suchlauftaste wird z.B. in folgenden Fällen verwendet.

Wiedergabestart mit voreingestellter Geschwindigkeit

1. Stellen Sie am Suchlaufknopf im Shuttle-Betrieb die gewünschte Wiedergabegeschwindigkeit ein. keit ein.
2. Drücken Sie die PLAY-Taste.
3. Drücken Sie die Suchlauftaste. Die Wiedergabe beginnt dann mit der in Schritt 1 eingestellten Geschwindigkeit.

Verhindern von versehentlichem Umschalten auf Suchlauf

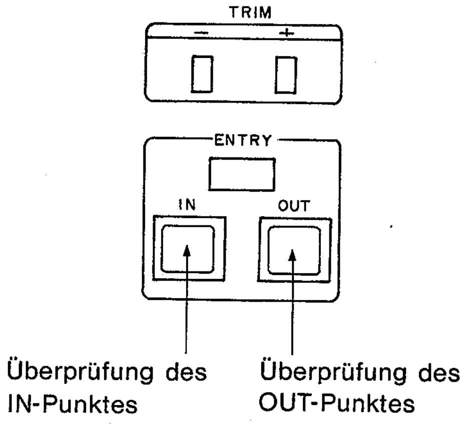
Um ein versehentliches Umschalten auf Suchlaufbetrieb zu verhindern, kann das Gerät intern so umgestellt werden, daß der Suchlauf nur bei gedrückter Suchlauftaste möglich ist. (Genaueres siehe Abschnitt 2.)

Überprüfung der IN- und OUT-Punkte

Die gespeicherten IN- und OUT-Punkte können auf dem Zeitzähler angezeigt werden.

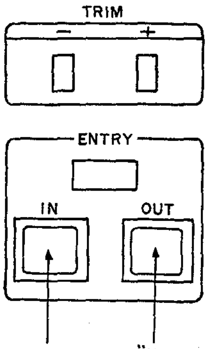
Überprüfung der IN- und OUT-Punkte des Wiedergabegeräts

Drücken Sie die PLAYER-Taste und halten Sie anschließend die IN- und OUT-Taste gedrückt. Der IN- bzw. OUT-Punkt wird dann angezeigt.



Überprüfung der IN- und OUT-Punkte des Aufnahmegeräts

Drücken Sie die RECORDER-Taste und halten Sie anschließend die IN- oder OUT-Taste gedrückt. Der IN- bzw. OUT-Punkt wird dann angezeigt.



Überprüfung des IN-Punktes

Überprüfung des OUT-Punktes

Korrektur des Schnittpunktes

Der Schnittpunkt kann auf zwei Arten korrigiert werden:
Weiterschaltung um ein Vollbild oder Eingabe eines neuen Schnittpunktes.

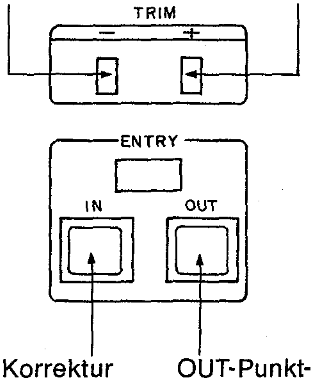
Korrektur des Schnittpunktes um Vollbilder

IN- und OUT-Punkte können in Vollbildschritten korrigiert werden.

1. Drücken Sie die IN- oder OUT-Taste, um den betreffenden Punkt auf der Zeitzähler-Anzeige anzuzeigen.
2. Halten Sie die IN- bzw. OUT-Taste gedrückt und drücken Sie gleichzeitig die TRIM + oder TRIM − Taste.
   Bei jedem Drücken der TRIM + Taste wird der Schnittpunkt um ein Vollbild weitergeschaltet und bei jedem Drücken der TRIM − Taste wird er um ein Vollbild zurückgeschaltet.

Schnittpunkt wird um ein Vollbild zurückgeschaltet.

Schnittpunkt wird um ein Vollbild vorgeschaltet.



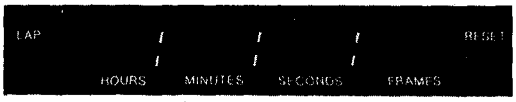
IN-Punkt-Korrektur

OUT-Punkt-Korrektur

Eingabe eines neuen Schnittpunktes

Suchen Sie den neuen Schnittpunkt auf und drücken Sie die ENTRY-Taste zusammen mit der IN- bzw. OUT-Taste. Der neue Schnittpunkt wird dann als IN- bzw. OUT-Punkt eingegeben, wobei der vorhergehende Punkt gelöscht wird.

Zeitzähler-Anzeige



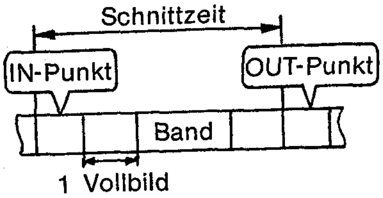
Die Zeitzähler-Anzeige zeigt die Bandlaufzeit bei Normalgeschwindigkeit an, wenn der CTL/CT-Wähler auf CTL gestellt ist. Durch Drücken der RESET-Taste kann die Anzeige auf „0:00:00:00" zurückgestellt werden. Läuft das Band dann von „0:00:00:00" aus in Rückwärtsrichtung, so wird der Anzeige ein Minuszeichen („—") vorausgestellt. Der Zeitzähler zählt die auf dem Band aufgezeichneten CTL-Signale. Fehlen die CTL-Signale, zeigt der Zeitzähler nicht die exakte Zeit an. Wenn des öfteren vor- oder zurückgespult wird, ist ebenfalls keine exakte Zeitanzeige möglich. Bei der Wiedergabe eines vollkommen neuen, noch unbespielten Bandes ändert sich die Zähler-Anzeige nicht, da noch keine CTL-Signale aufgezeichnet sind. Leuchtet die RECORDER-Lampe, so wird die Bandposition des Aufnahmegeräts angezeigt, und leuchtet die PLAYER-Lampe, so wird die Position des Wiedergabegeräts angezeigt.

Wenn die IN- oder OUT-Taste nach Eingabe des IN- und OUT-Punktes gedrückt wird, erscheint der IN- bzw. OUT-Punkt auf der Anzeige.

Wird die RESET-Taste nach Eingabe der Schnittpunkte gedrückt, so werden die eingegebenen Punkte gelöscht. Die RESET-Taste darf deshalb erst dann gedrückt werden, wenn die Schnittaufnahme vollständig ausgeführt ist.

Anzeige der Schnittdauer

Wenn nach Eingabe der IN- und OUT-Punkte die LAP-Taste gedrückt wird, so wird die Schnittdauer (Zeit zwischen IN- und OUT-Punkten) auf der Zeitzähler-Anzeige angezeigt, solange die Taste gedrückt gehalten wird. Leuchtet die RECORDER-Lampe, so wird die Schnittzeit des Aufnahmegeräts angezeigt und leuchtet die PLAYER-Lampe, so wird die Schnittzeit des Wiedergabegeräts angezeigt. Wenn der OUT-Punkt am Wiedergabegerät eingegeben wird, so wird die Schnittzeit nach Ausführung des Vorschau- oder des automatischen Schnittbetriebs zum Aufnahmegerät übertragen.



Wenn die LAP-Taste gedrückt wird, ohne daß zuvor die Schnittpunkte eingegeben wurden, so wird folgende Zeit angezeigt.

Wenn weder IN- noch OUT-Punkte eingegeben wurden, wird die Schnittzeit des vorhergehenden Schnittes angezeigt.

Wenn nur der IN-Punkt eingegeben wurde, wird die Zeit vom IN-Punkt bis zum momentanen Bandpunkt angezeigt. Wenn nur der OUT-Punkt eingegeben wurde, wird die Zeit des vorhergehenden Schnittes angezeigt.

Blinken der Kontrollampen

Drücken Sie die Tasten, deren Lampen blinken, um den Schnittvorgang abzuschließen. Das Aufleuchten und Blinken der Lampen hat folgende Bedeutung.

- Blinken der ASSEMBLE- und INSERT (VIDEO, AUDIO CH1, AUDIO CH2)-Lampen signalisiert, daß der Schnittbetrieb durch Drücken der entsprechenden Taste festgelegt werden muß.
  Nach dem Drücken wird durch konstantes Leuchten angezeigt, daß die Betriebsart gewählt ist.
- Blinken der IN- und/oder OUT-Lampen am Wiedergabe- und Aufnahmegerät signalisiert, daß der (die) Schnittpunkt(e) eingegeben werden muß (müssen).
  Konstantes Leuchten der IN- und OUT-Lampen zeigt an, daß die IN- und OUT-Punkte festgelegt sind, aber die Schnittaufnahme noch nicht durchgeführt wurde.
- Blinken der PREVIEW- und AUTO EDIT-Lampe signalisiert, daß der Vorschaubetrieb oder der automatische Schnittbetrieb durchgeführt werden kann.
  Konstantes Leuchten der PREVIEW- oder AUTO EDIT-Lampe zeigt an, daß sich das Aufnahmegerät im entsprechenden Betriebszustand befindet.

Ändern der Schnittvoreinlaufzeit

Die Schnittvoreinlaufzeit ist auf 10 Sekunden eingestellt, kann aber gegebenenfalls auf 5 Sekunden umgestellt werden.

Wenn eine solche Änderung vorgenommen wird, muß die Aufnahmeperiode des CTL-Signals vor dem IN-Punkt bzw. die Periode zwischen dem Aufnahme-Startpunkt und dem ersten IN-Punkt entsprechend der neuen Schnittvoreinlaufzeit geändert werden. Die am Aufnahmegerät eingestellte Schnittvoreinlaufzeit ist sowohl für das Wiedergabe- als auch für das Aufnahmegerät wirksam. Genaueres dazu siehe Abschnitt 2. Bei Aktivierung der halbbildrichtigen Farbträgerverkopplung ist die Schnittvoreinlaufzeit auf 10 Sekunden einzustellen.

1-6-3. Paralleler Betrieb von Wiedergabe- und Aufnahmegerät

Die Suchlauf-, Eingabe-, Wiedergabe-, Vorspul- und Rückspul-Funktion kann vom Wiedergabe- oder Aufnahmegerät aus bedient werden, während eines dieser Geräte verwendet wird, so daß die zum Schneiden benötigte Zeit erheblich verkürzt werden kann.

Methode 1

Stellen Sie den Fernbedienungswähler des Wiedergabegeräts auf LOCAL. An den Bedienungspulten wird dann das Aufnahme- bzw. Wiedergabegerät selbst gesteuert.

Methode 2

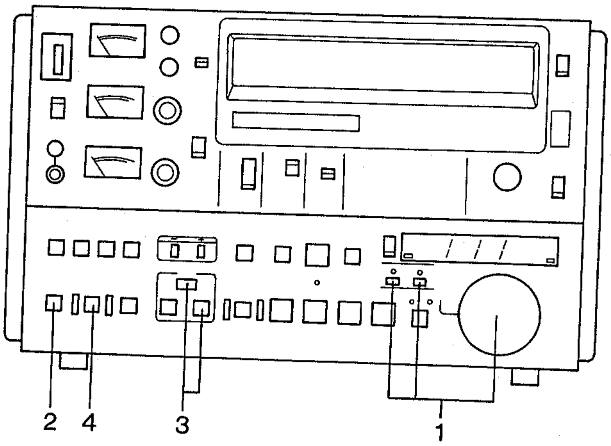
Stellen Sie den Fernbedienungswähler des Wiedergabegeräts auf REMOTE (und REMOTE 1) und verwenden Sie das Bedienungspult des Aufnahmegeräts wie folgt.

1. Drücken Sie die RECORDER-Taste, so daß die RECORDER-Lampe leuchtet und bedienen Sie das Aufnahmegerät am Bedienungspult.
2. Drücken Sie die PLAYER-Taste, so daß die PLAYER-Lampe leuchtet. Das Wiedergabegerät kann an folgenden Bedienungselementen bedient werden, und die Zeitzähler-Anzeige zeigt die Bandposition des Wiedergabegeräts an.
   Suchlaufknopf, Suchlauftaste, PREROLL, PLAY, F FWD, REW, STOP, STANDBY, EJECT, ENTRY IN, ENTRY OUT, TRIM +, TRIM −, LAP, RESET.
   Das Aufnahmegerät bleibt weiterhin in der Betriebsart von Schritt 1.
3. Drücken Sie die RECORDER-Taste, um wieder das Aufnahmegerät zu bedienen.

- Wenn das Bedienungspult abgenommen und mit dem als Sonderzubehör lieferbaren Fernbedienungskabel BK-802 angeschlossen wird, können Aufnahme- und Wiedergabegerät fernbedient werden.

1-6-4. Schnelles Schneiden

Sie können Zeit sparen, indem Sie die IN- und OUT-Punkte im Vorschaubetrieb eingeben.



1. Suchen Sie die IN-Punkte mit dem Suchlaufknopf sowohl für das Wiedergabe- als auch für das Aufnahmegerät auf, und stoppen Sie das Band.
2. Drücken Sie die PREVIEW-Taste. Die im Schritt 1 aufgesuchten Punkte werden als IN-Punkte des Aufnahme- und des Wiedergaberäts (IN-Taste leuchtet) abgespeichert, und der Vorschaubetrieb beginnt.
3. Beobachten Sie den Monitor des Aufnahmegeräts und drücken Sie am Endpunkt der Szene gleichzeitig die OUT- und die ENTRY-Tasten am Wiedergabe- und am Aufnahmegerät.
   Der OUT-Punkt ist damit abgespeichert. Das Band läuft noch 2 Sekunden weiter und kehrt dann zum Schnittvorlaufpunkt zurück.

- Mit dem Suchlaufknopf kann auch der OUT-Punkt exakt aufgesucht werden.
- Falls notwendig, führen Sie eine erneute Vorschau durch und korrigieren Sie ggf. die IN- und OUT-Punkte vor.

4. Drücken Sie die AUTO EDIT-Taste, um die Schnittaufnahme zu starten.

Noch schnelleres Schneiden

Drücken Sie im obigen Schritt 2 die AUTO EDIT-Taste. Die Schnittaufnahme beginnt dann am IN-Punkt, der in Schritt 1 festgelegt wurde.

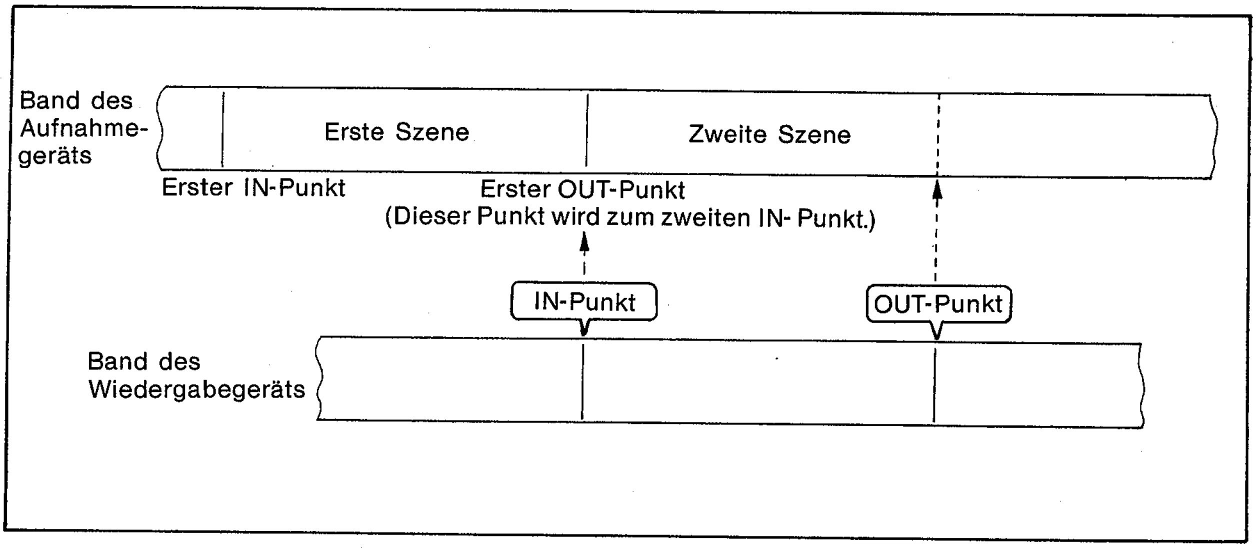
Am gewünschten Endpunkt der Szene drücken Sie gleichzeitig die OUT- und die ENTRY-Taste am Wiedergabe- oder Aufnahmegerät. Dieser Punkt wird dann zum OUT-Punkt.

1-6-5. Fortlaufendes Schneiden (Butt Edit)

Ist die Aufnahme vom IN- zum OUT-Punkt beendet, kehrt das Aufnahmegerät zum OUT-Punkt zurück und stoppt dort. Der OUT-Punkt kann automatisch zum nächsten IN-Punkt des Aufnahmegeräts gemacht werden (Butt-Betrieb).

1. Legen Sie die nächsten IN- und OUT-Punkte am Wiedergabegerät fest.
2. Drücken Sie die AUTO EDIT-Taste. Die Aufnahme beginnt dann.

Die Eingabe des OUT-Punktes in Schritt 1 kann übergangen werden. Drücken Sie in diesem Fall am Szenenende gleichzeitig die OUT- und ENTRY-Tasten am Aufnahme- oder Wiedergabegerät, um den Schnitt zu beenden.



1-6-6. Separater Tonschnitt

Bei Einfügbetrieb kann die Schnittaufnahme für das Videosignal, Tonsignal 1 und Tonsignal 2 unabhängig gestartet und gestoppt werden.

1. Wählen Sie das gewünschte Eingangssignal mit den INSERT-Tasten.
2. Drücken Sie die AUTO EDIT-Taste zum Starten der automatischen Schnittaufnahme.
3. An dem Punkt, an dem die Schnittaufnahme des Video- oder Tonsignals enden soll, drücken Sie die entsprechende(n) INSERT-Taste(n).
   Die betreffenden Tasten werden dann abgeschaltet.
   An dem Punkt, an dem die Schnittaufnahme des Video- und Tonsignals beginnen soll, drücken Sie die betreffende(n) INSERT-Taste(n).
   Die betreffenden Tasten leuchten dann auf.
   Mit den INSERT-Tasten können die gewünschten Signale an jedem gewünschten Punkt ein- oder ausgeblendet werden.
   Auch wenn gerade alle Signale ausgeblendet sind, können die gewünschten Signale durch einfaches Drücken der INSERT-Taste jederzeit eingeblendet werden.
4. Sobald der OUT-Punkt eingegeben ist, stoppt die Aufnahme automatisch.
   Wenn kein OUT-Punkt eingegeben wurde, drücken Sie zum Stoppen der Schnittaufnahme die OUT- und ENTRY-Taste.

Hinweis

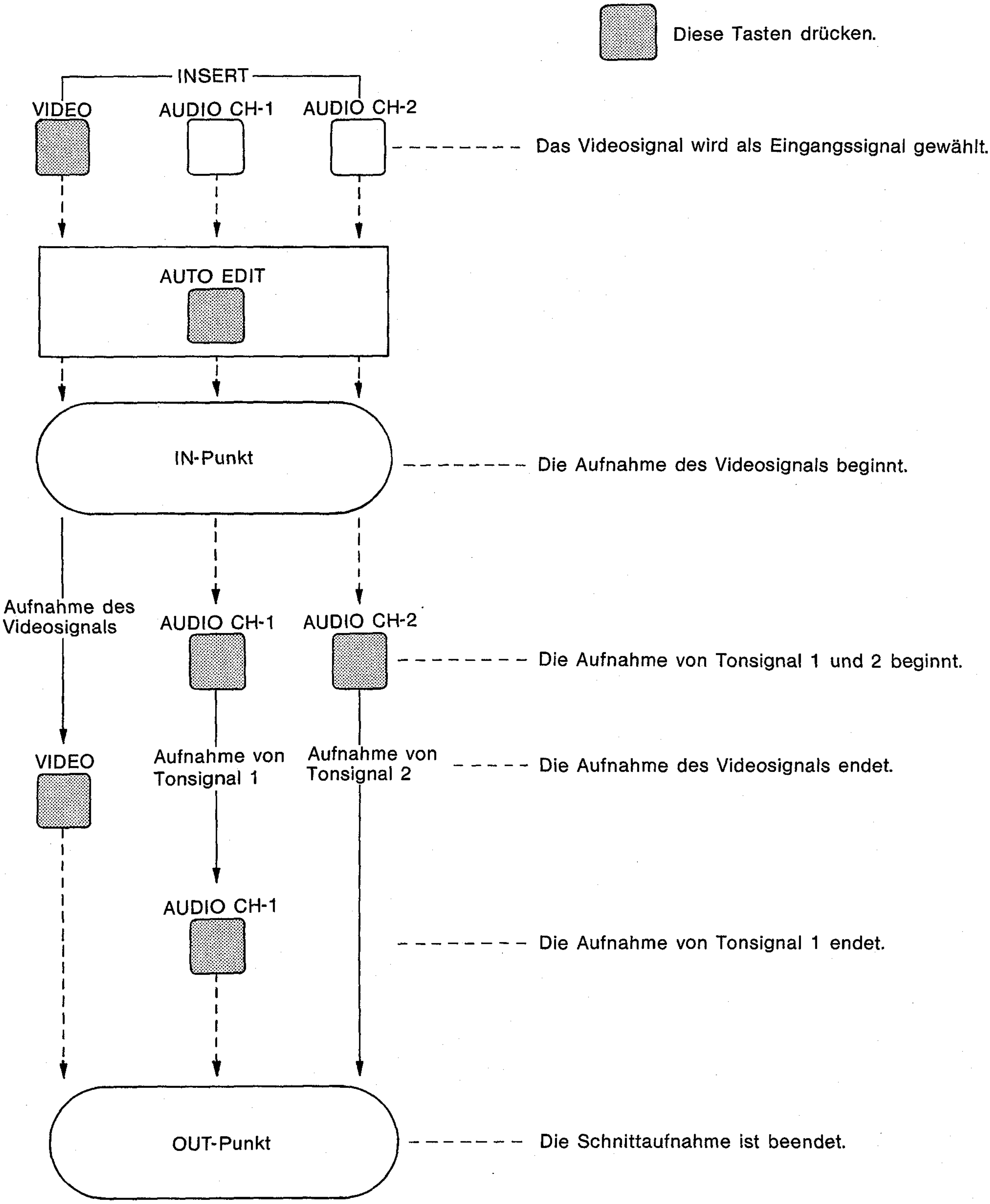
Wenn die Schnittaufnahme gestoppt wurde, ist mit den INSERT-Tasten keine Einblendung der Video- und Tonsignale mehr möglich.

Bei manuellem Einfügbetrieb kann der separate Tonschnitt auf gleiche Art ausgeführt werden.

Stoppen der Schnittaufnahme

Drücken Sie die PLAY-Taste.

Beispiel zur Schnittaufnahme


INSERT
VIDEO
AUDIO CH-1
AUDIO CH-2
AUTO EDIT
IN-Punkt
Aufnahme des Videosignals
AUDIO CH-1
AUDIO CH-2
VIDEO
Aufnahme von Tonsignal 1
Aufnahme von Tonsignal 2
AUDIO CH-1
OUT-Punkt

▨ Diese Tasten drücken.

Das Videosignal wird als Eingangssignal gewählt.

Die Aufnahme des Videosignals beginnt.

Die Aufnahme von Tonsignal 1 und 2 beginnt.

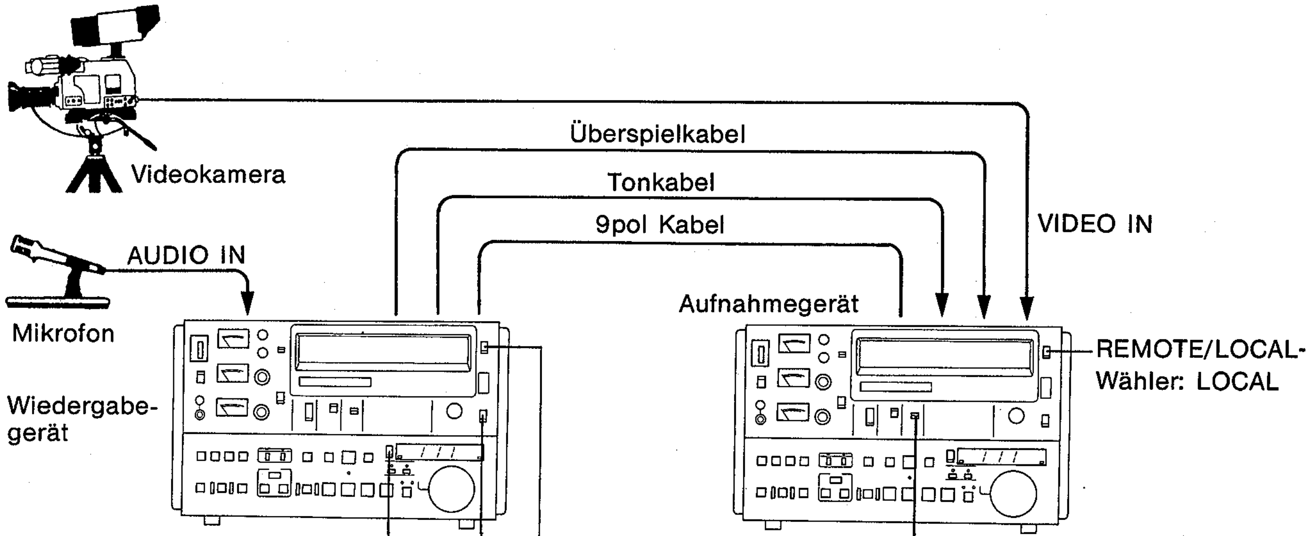
Die Aufnahme des Videosignals endet.

Die Aufnahme von Tonsignal 1 endet.

Die Schnittaufnahme ist beendet.

1-6-7. Schneiden des Kamerabildes

Schneiden eines Kamerabildes bei Band-zu-Band-Schnittbetrieb


Videokamera
Überspielkabel
Tonkabel
9pol Kabel
VIDEO IN
AUDIO IN
Mikrofon
Wiedergabe-gerät
Aufnahmegerät
REMOTE/LOCAL-Wähler: LOCAL

PB.PB/EE-Wähler: PB/EE

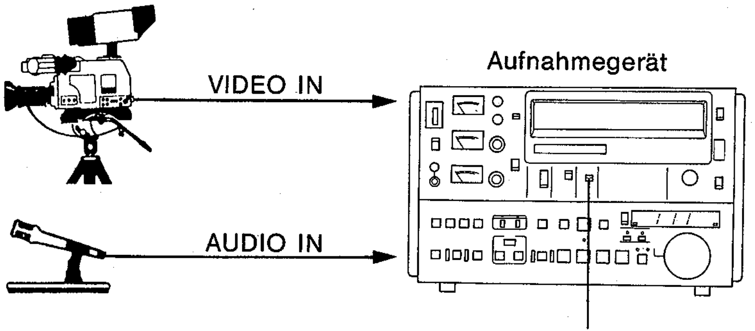
REMOTE-1/REMOTE-2-Wähler: REMOTE-1

REMOTE/LOCAL-Wähler: REMOTE
Steht der INPUT SELECT-Schalter des Aufnahmegeräts auf LINE, stellen Sie ihn auf LOCAL um.

INPUT SELECT-Schalter: DUB oder LINE
Zum Schneiden des Signals vom Wiedergabegerät auf DUB stellen.
Zum Schneiden des Kamerabildes auf LINE stellen.

Hinweis
Beim Aufnehmen des Kamerasignals schalten Sie das Wiedergabegerät in die Stop-Funktion.

Um nur das Kamerabild zu schneiden


Aufnahmegerät
VIDEO IN
AUDIO IN

INPUT SELECT-Schalter: LINE

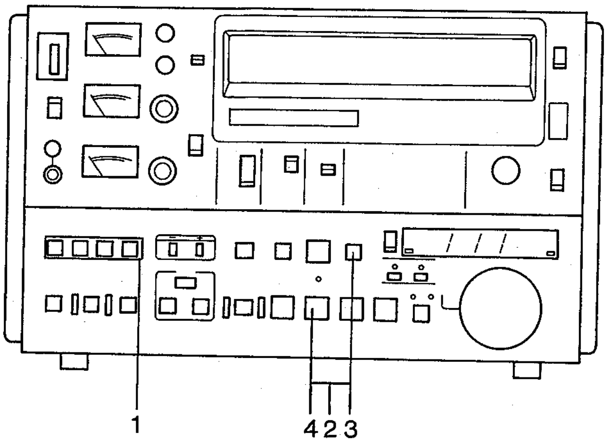
Einfügschnitt
Geben Sie den IN-Punkt des Aufnahmegeräts ein und drücken Sie die AUTO EDIT-Taste. Die Aufnahme des Kamerasignals beginnt nun.
Zum Stoppen der Aufnahme drücken Sie gleichzeitig die ENTRY- und OUT-Tasten.

Hinweis
Der OUT-Punkt des Einfügschnitts kann nicht am Aufnahmegerät eingegeben werden.

Einfügschnitt
Geben Sie die IN- und OUT-Punkte des Aufnahmegeräts ein und drücken Sie die AUTO EDIT-Taste. Die Aufnahme wird dann zwischen den IN- und OUT-Punkten ausgeführt. Wenn kein OUT-Punkt eingegeben wurde, drücken Sie zum Stoppen der Aufnahme gleichzeitig die ENTRY- und OUT-Tasten.

1-6-8. Manuelles Schneiden

Anschlüsse und Einstellungen sind dieselben wie auf Seite 1-20.

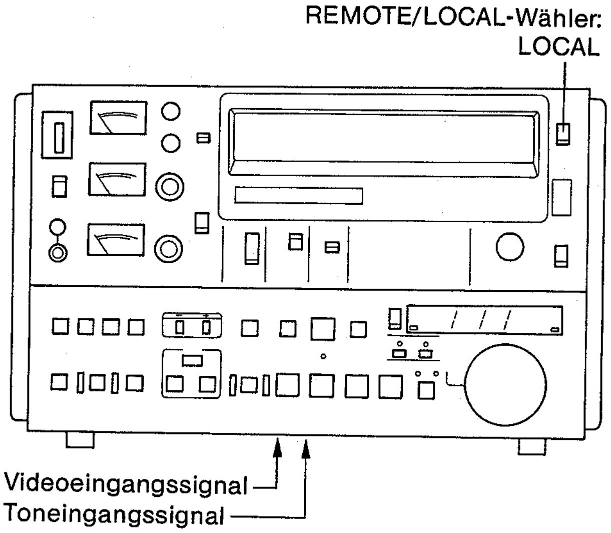


1. Wählen Sie die Schnittbetriebsart: Einfüg- oder Anfügschnitt.
2. Geben Sie die Bänder des Aufnahme- und Wiedergabegeräts wieder.
3. Am geplanten Szenenanfang drücken Sie gleichzeitig die PLAY- und EDIT-Tasten am Aufnahmegerät.
   Die Schnittaufnahme beginnt an dem Punkt, an dem die Tasten gedrückt wurden.
4. Am geplanten Szenenende drücken Sie die PLAY-Taste am Aufnahmegerät.
   Die Schnittaufnahme stoppt und das Aufnahmegerät schaltet auf Wiedergabe.

Hinweise

- Wird die Schnittaufnahme aus der Stop-Funktion heraus gestartet oder mit der STOP-Taste gestoppt, so ist das Bild am IN- bzw. OUT-Punkt instabil.
- Um ein vollkommen stabiles Bild zu erhalten, starten Sie die Aufnahme bereits mindestens 10 Sekunden vor dem IN-Punkt.
- Vor der Schnittaufnahme muß eine KSP-Cassette zunächst wiedergegeben werden, da sonst der Formaterkennungsschaltkreis das Format nicht erkennen kann, und die Aufnahme nicht mit richtigem Format ausgeführt wird.

1-6-9. Schneiden mit einem BVU-850P

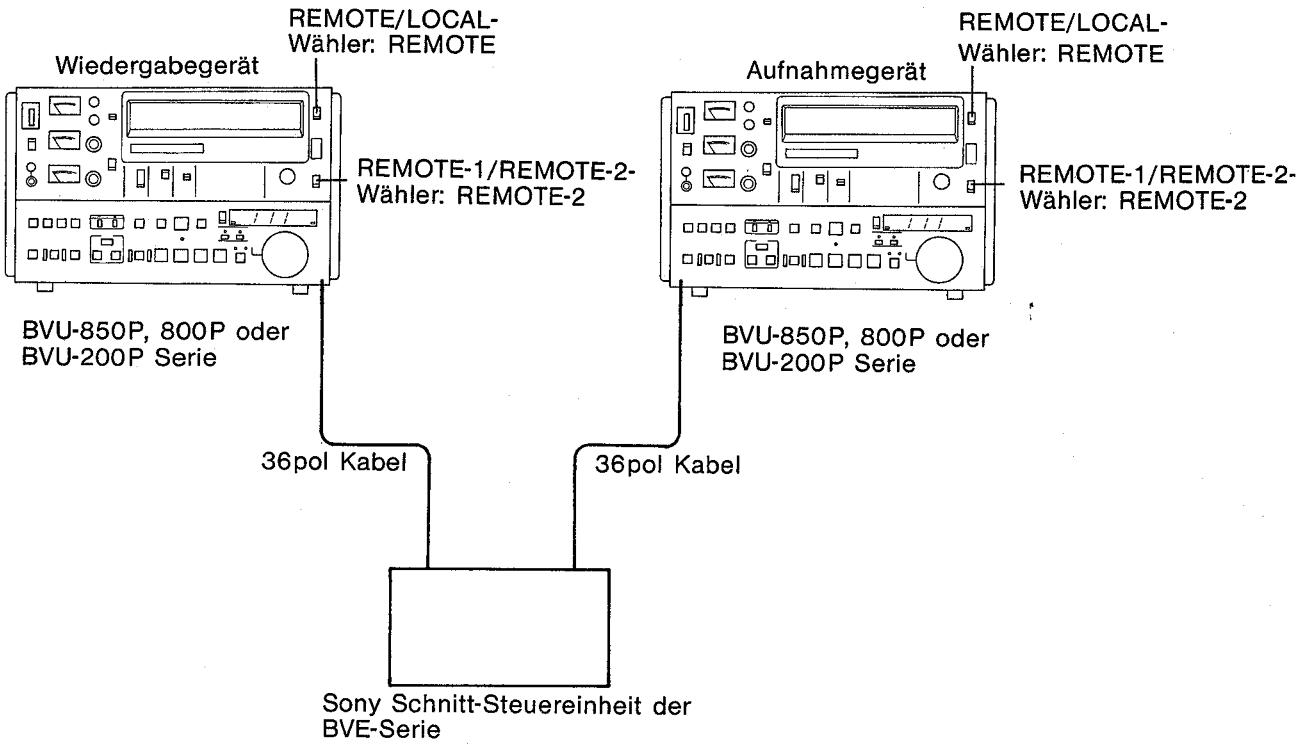


Wenn Video- und Tonsignale an dieses Gerät angeschlossen werden, kann wie auf den vorhergehenden Seiten beschrieben geschnitten werden.

Hinweis

An diesem Gerät können die IN- und OUT-Punkte eingegeben und die AUTO EDIT-, PREVIEW- und TRIM-Taste bedient werden.
Die Video- und Tonsignalquellen sind getrennt zu bedienen.

1-6-10. Schneiden mit herkömmlicher Schnitt-Steuereinheit


REMOTE/LOCAL-
Wähler: REMOTE
Wiedergabegerät
REMOTE-1/REMOTE-2-
Wähler: REMOTE-2
BVU-850P, 800P oder
BVU-200P Serie
REMOTE/LOCAL-
Wähler: REMOTE
Aufnahmegerät
REMOTE-1/REMOTE-2-
Wähler: REMOTE-2
BVU-850P, 800P oder
BVU-200P Serie
36pol Kabel
36pol Kabel
Sony Schnitt-Steuereinheit der
BVE-Serie

Mit den Funktionstasten der Schnitt-Steuereinheit können Wiedergabe- und Aufnahmegerät fernbedient werden.

Herausnehmen der eingelegten Cassette
Stellen Sie den eingestellten REMOTE/LOCAL-Wähler auf LOCAL und drücken Sie dann die EJECT-Taste.

Hinweise zur Verwendung einer Schnitt-Steuereinheit der BVE-500-Serie.

- Steht der Suchlaufknopf des Geräts der BVE-500-Serie auf ×2, so läuft das Band des BVU-850P mit 5facher Normalgeschwindigkeit. Steht der Knopf auf ×1/20, so läuft es mit 1/30 Normalgeschwindigkeit.
- Um den BVU-850P über die Schnitt-Steuereinheit der BVE-500-Serie in einen anderen Betriebszustand umzuschalten, halten Sie die betreffende Taste so lange gedrückt, bis der gewünschte Betriebszustand erreicht ist.
- Erfolgt die Bedienung an der Schnitt-Steuereinheit der BVE-500-Serie, so leuchten möglicherweise die Lampen am BVU-850P nicht auf. Der Betriebszustand des Wiedergabe- und Aufnahmegeräts wird in diesem Fall durch die Lampen der Schnitt-Steuereinheit angezeigt.
- An der Schnitt-Steuereinheit der BVE-500-Serie kann die Schnittvoreinlaufzeit auf 3 oder 5 Sekunden eingestellt werden.
- Ist eine Schnitt-Steuereinheit der BVE-500-Serie angeschlossen und wird der BVU-850P als Aufnahmegerät verwendet, so stellen Sie den COLOR FRAMING-Schalter am BVU-850P auf OFF.

1-7. SCHUTZ DES BANDES

Zum Schutz des Bandes schaltet das Gerät bei Betriebsstörungen automatisch auf eine andere Betriebsart um.

Z.B.

Bei Vorspulen/Rückspulen/Vorlauf/Rücklauf/Stop/Standbild:

Bei unregelmäßigem Drehen der Spule und abnormalem Bandzug schaltet das Gerät zunächst in die Stop-Funktion, oder das Band wird ausgeworfen. Dauert die Störung länger als 3 Sekunden an, bleibt der Wickelmotor stehen, und das Band wird gleichzeitig mechanisch gebremst.

Beim Einfädeln und Freigeben des Bandes:

Ist die Drehung der Spule unregelmäßig oder der Bandzug abnormal, schaltet das Gerät in die Stop-Funktion, oder das Band wird ausgeworfen.

Bei fehlerhafter Spannung oder fehlerhafter LED:

Bei fehlerhafter Spannung am B+Anschluß und bei fehlerhafter LED (für Sensor) werden die Spulen mechanisch gebremst, und das Gerät schaltet in die Stop-Funktion oder das Band wird ausgeworfen.

1-8. REINIGEN DER KÖPFE

Reinigen Sie die Video- und Tonköpfe mit der als Sonderzubehör lieferbaren Videokopf-Reinigungscassette KC-1C. Genaueres dazu finden Sie in der Anleitung der Reinigungscassette.

Hinweis

Vergessen Sie nicht, die Reinigungscassette nach dem Betrieb herauszunehmen, da sich die Kopftrommel auch in der Stop-Funktion noch dreht.

1-9. TECHNISCHE DATEN

Mechanische Daten

Gewicht	38 kg
Abmessungen	454 × 283 ×550 mm (B/H/T)
Betriebsposition	Horizontal
Bandlaufwerk	U-matic-System
Videocassetten	KCA, KCS, KSP und KSP-S-Cassetten (3/4 Zoll-Cassette)
Bandgeschwindigkeit	9,53 cm/s
Gleichlaufschwankungen	±0,25% (DIN)
Aufnahme/Wiedergabespielzeit	max. 60 Min. mit KCA-60 Video-Cassette
Schnellvorlaufzeit	weniger als 4 Min. mit KCA-60 Video-Cassette
Rücklaufzeit	weniger als 2,5 Min. mit KCA-60 Video-Cassette
Suchlaufgeschwindigkeit	SHUTTLE: Stand, 1/30, 1/10, 1/5, 1/2, 1, 2, 5 und 10fache Normalgeschwindigkeit in Vorwärts- und Rückwärtsrichtung JOG: Stand bis Normalgeschwindigkeit in Vorwärts- und Rückwärtsrichtung
Anschlüsse	AC IN: 3pol Wechselspannungsanschluß VIDEO IN (2): BNC-Anschlüsse VIDEO OUT (2): BNC-Anschlüsse AUDIO IN CH-1/L, CH-2/R: XLR-Buchsen AUDIO OUT CH-1/L, CH-2/R: XLR-Stecker AUDIO OUT MONITOR: XLR-Stecker TIME CODE IN: BNC-Anschluß TIME CODE OUT: BNC-Anschluß DUB IN: 7pol Stecker DUB OUT: 7pol Buchse SC IN: BNC-Anschluß EXT SYNC IN: BNC-Anschluß RF (OFF TAPE): BNC-Anschluß TBC: CCY-Anschluß MONITOR OUT: 8pol Anschluß REMOTE 2 (36P): 36pol Anschluß REMOTE 1 (9P): RS-422 9pol Anschluß HEADPHONES: JM-60 Stereo-Klinkenbuchse
Betriebstemperatur	+5°C bis +40°C
Lagertemperatur	−20°C bis +60°C

Elektrische Daten

Versorgungsspannung	100/120/220/240 V Wechselspannung±10% (einstellbar), 48 bis 64 Hz
Leistungsaufnahme	180W mit Zubehör
Schnittbetriebsarten	ASSEMBLE und INSERT (VIDEO, AUDIO CH-1, AUDIO CH-2), AUTO EDIT, MANUAL EDIT, PREVIEW, REVIEW, PREROLL, TRIM

Video

Videoaufzeichnungssystem	Luminanzsignal: Frequenzmodulation Chromasignal: Heruntersetzung des Farbträgers
Eingang	PAL-FBAS-Signal, Video positiv 1,0 Vss ±0,3V, 75Ω, unsymmetrisch
Ausgang	PAL-FBAS-Signal, Video positiv 1,0 Vss ±0,2V, 75Ω, unsymmetrisch
Kopiereingang	Luminanzsignal: 0,5 Vss Video positiv Impedanz: 75Ω ±10% Chromasignal: 0,5 Vss Impedanz: 75Ω ±10%
Kopierausgang	Luminanzsignal: 0,5 Vss Video positiv Impedanz: 75Ω ±10% Chromasignal: 0,5 Vss Impedanz: 75Ω ±10%
Horizontalauflösung	SP-Betrieb 300 Zeilen (bei Schwarzweiß/Farbe) Herkömmlicher Betrieb 260 Zeilen (bei Schwarzweiß/Farbe)
Signal-Rauschabstand	SP-Betrieb Farbe: mehr als 46 dB Luminanz (Y): mehr als 49 dB AM: mehr als 46 dB PM: mehr als 41 dB Herkömmlicher Betrieb Mehr als 46 dB (Farbe)

Nur SP-Betrieb

K-Faktor (2T-Impuls)	Unter 3%
Differenzialgewinn	Unter 3%
Differenzialphase	Unter 3°
Y/C-Verzögerung	Unter 25 ns

Audio

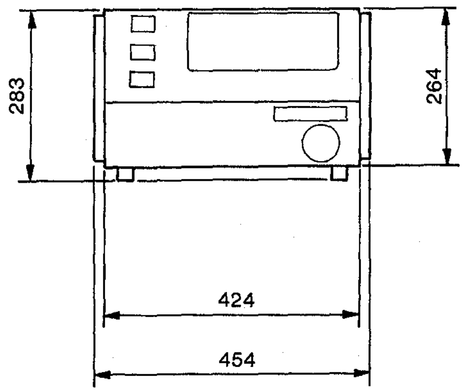
Eingang	MIC −60 dB, 3 kOhm, symmetrisch (für Mikrofone mit 600 Ohm) LINE +4 dB, 10 kOhm/600 Ohm, symmetrisch
Ausgang	LINE +4 dB, niedrige Impedanz symmetrisch (600 Ohm Lastimpedanz möglich) HEADPHONES −46 bis −26 dB, 8 Ohm Lastimpedanz, binaural MONITOR +4 dB, 600 Ohm Lastimpedanz, symmetrisch
Verzerrungen	Kleiner als 2,0% (bei 1 kHz Bezugssignal)
Frequenzgang	SP-Betrieb 50 Hz bis 15 kHz ±3 dB Herkömmlicher Betrieb 50 Hz bis 15 kHz ± 4 dB
Signal-Rauschabstand	SP-Betrieb Mehr als 52 dB (bei Klirrgrad von 3% ohne Dolby-System) Herkömmlicher Betrieb 48 dB (bei Klirrgrad von 3%)
TIME CODE-Eingang	0 dB ± 6 dB, 10 kOhm, unsymmetrisch (0 dB = 1,55 Vss Impuls)
TIME CODE-Ausgang	0 dB ± 3 dB, niedrige Impedanz, unsymmetrisch (0 dB = 1,55 Vss Impuls)
SC-Eingang	2 Vss ± 1V, 75 Ohm, unsymmetrisch
SYNC-Eingang	0,2 Vss bis 5 Vss, negativ, 75 Ohm, unsymmetrisch (1 Vss ± 0,2V bei Videoeingangssignal)
HF-Ausgang (OFF TAPE)	0,5 Vss ± 0,1V, 75 Ohm, unsymmetrisch

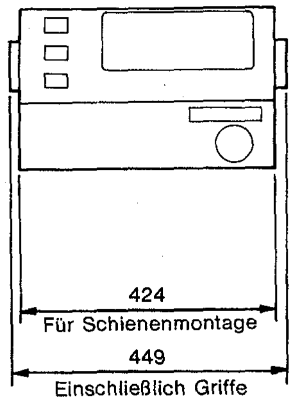
Mitgeliefertes Zubehör

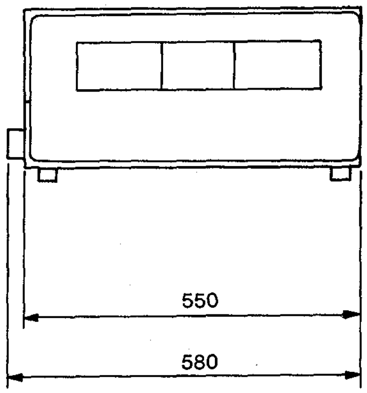
Netzkabel	1
Überspielkabel VDC-5 (5m)	1
Fernbedienungskabel (9pol–9pol) RCC-5G	1
Verlängerungsplatte EX-7	1
Bedienungs- und Wartungsanleitung	2

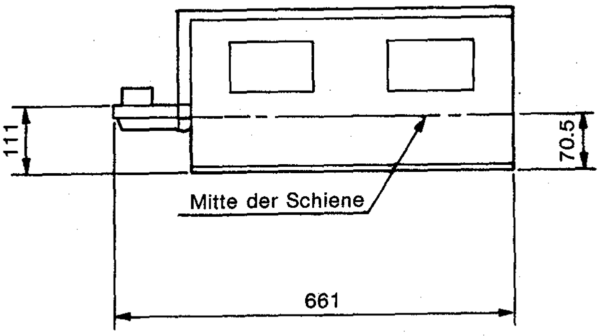
Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.

Abmessungen



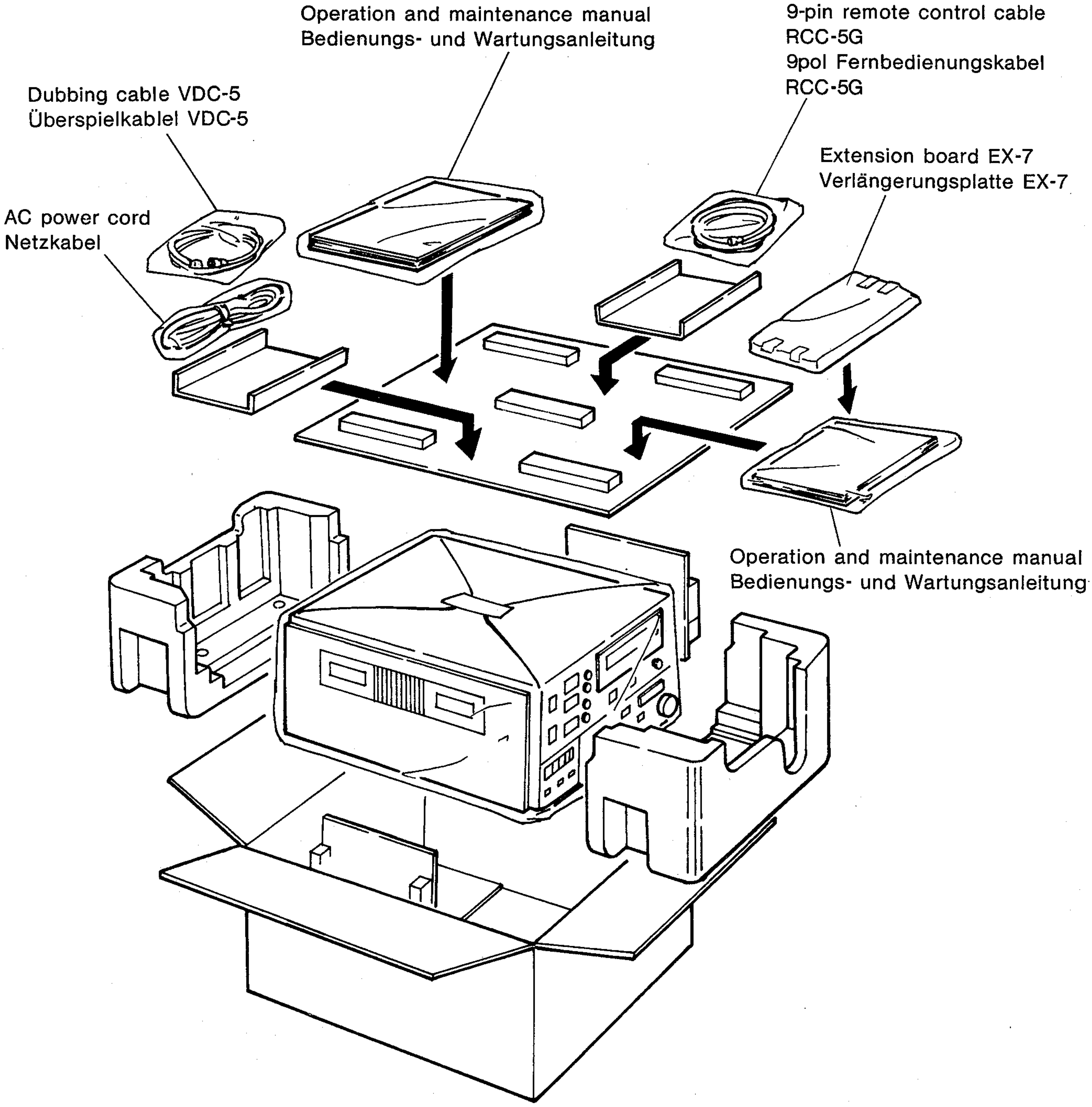






EINHEIT: mm

1-10. REPACKING FOR SHIPMENT/ WIEDERVERPACKUNG FÜR TRANSPORTZWECKE


Operation and maintenance manual
Bedienungs- und Wartungsanleitung
9-pin remote control cable
RCC-5G
9pol Fernbedienungskabel
RCC-5G
Dubbing cable VDC-5
Überspielkabel VDC-5
Extension board EX-7
Verlängerungsplatte EX-7
AC power cord
Netzkabel
Operation and maintenance manual
Bedienungs- und Wartungsanleitung

SECTION 2
INSTALLATION

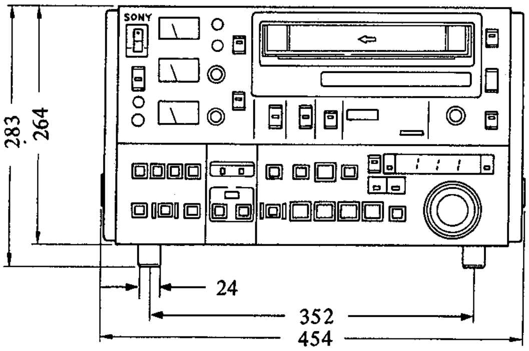
Be sure to install the BVU-850P at the installation space under the required operational environment as regulated below. It will assure the BVU-850P's superior performance while maintaining the excellent serviceability and accessibility.

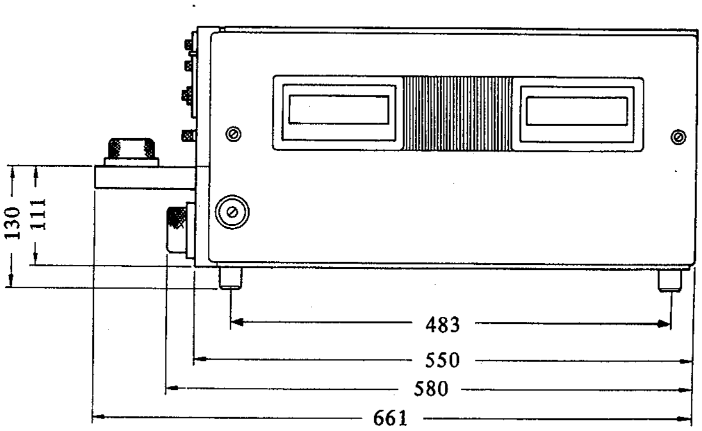
2-1. OPERATIONAL ENVIRONMENT

- Areas where the BVU-850P will be exposed to direct sunlight, or any other strong direct lights.
- Avoid installation in dusty areas or areas where it is subject to vibration.
- Avoid areas where high electric or magnetic fields are to be found.
- Good air circulation is essential to prevent internal heat buildup. Place the set in locations with sufficient air circulation. Do not block the ventilation holes on the cabinet and the rear panel.
- Avoid installation in a location near heat sources. The set should only be operated in a temperature range from 5°C to 40°C.

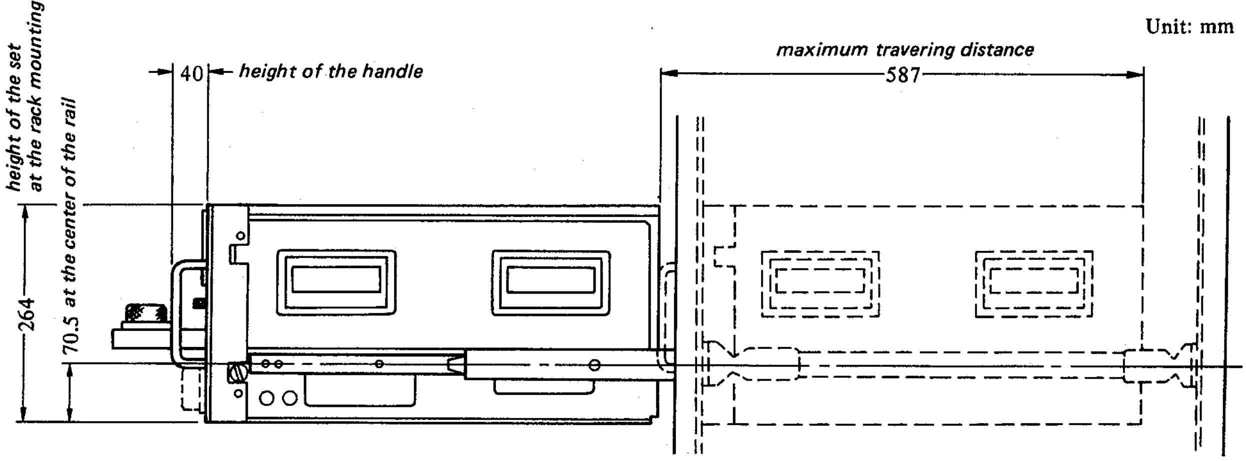
2-2. INSTALLATION SPACE

- The outer dimensions of the set are shown in the figure below.
- The rear side of the set must be at least 40cm away from the wall for ventilation and maintenance.
- When the set is operated on the desk or similar condition, assure that the vertical clearance above the BVU-850P is at least 40cm to provide the accessibility to the printed circuit boards and other mechanical parts. But note that it is not necessary to provide the space when the set is mounted in a rack since the printed circuit boards can be repaired after the set is pulled out.


SONY
283
264
24
352
454


130
111
483
550
580
661

Unit: mm

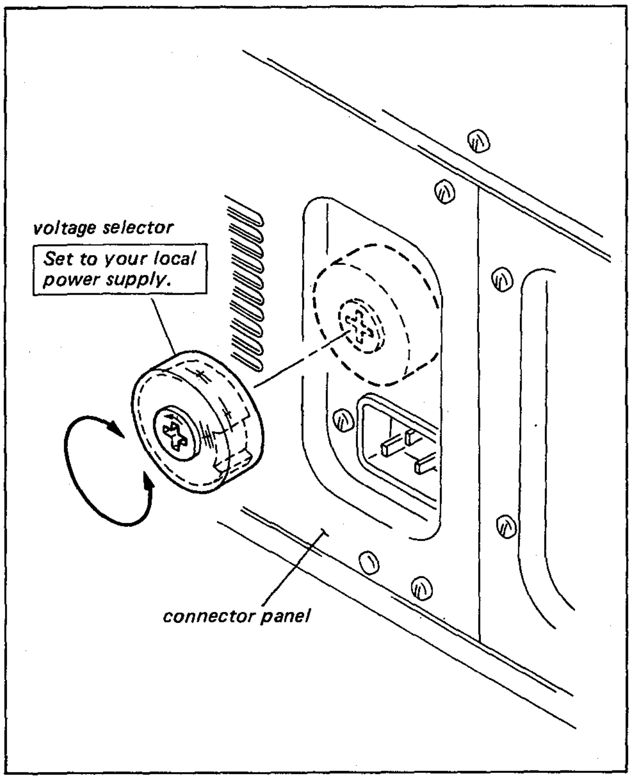

height of the set at the rack mounting
at the center of the rail
40
height of the handle
264
70.5
maximum travering distance
587

When the BVU-850P is mounted in a rack.

Unit: mm

2-3. OPERATING VOLTAGE

The BVU-850P's power line voltage can be set to 100V, 120V, 220V or 240V for use anywhere in the world. Before connecting the set to power source, check that the operating voltage of your set is identical to that of your local power supply. The BVU-850P can operate on either 50 Hz or 60 Hz.

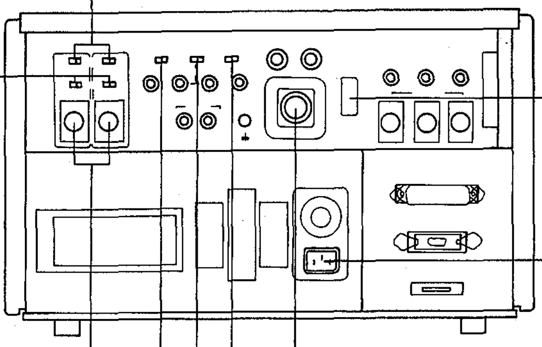

voltage selector
Set to your local power supply.
connector panel

NOTE:
Be sure to tighten the screw.

2-4. CONNECTIONS

RECORDING

Rear panel



AUDIO IN LEVEL selectors: LOW or HIGH
For microphone input, set to LOW.
For line input, set to HIGH.

600Ω termination switches: ON or OFF
When the AUDIO IN LEVEL selectors are set to HIGH, set to the appropriate position.
For 600 ohm input, set to ON.
For 10 k ohm input, set to OFF.

Monitor output

AC power source

Audio input

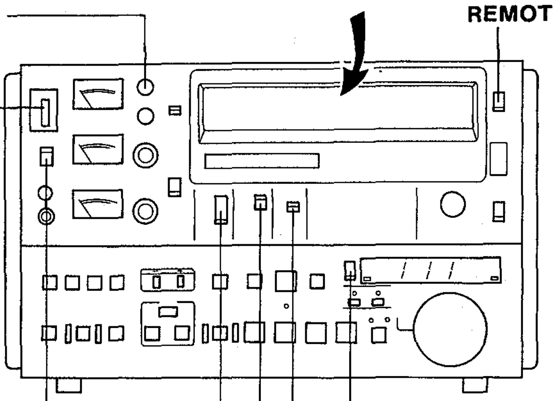
SERVO LOCK selector: AUTO
To synchronize with an external reference signal, set to EXT.

75Ω termination switch: ON
When a looping output is employed, set to OFF.

To duplicate the dubbing video signal
Connect to DUB IN. (Video input from a U-matic VTR or a Betacam VTR)

To record the composite video signal
Connect to VIDEO IN. (Video input from a video camera, VTR, etc.)

Front panel



TRACKING control: FIXED

Insert a cassette.

REMOTE/LOCAL selector: LOCAL

POWER switch: ON

AUDIO MONITOR selector: MIX

MIXING SELECT switch: OFF

MODE SELECT switch: NORMAL

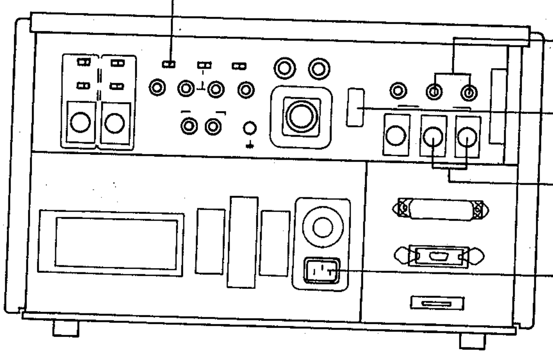
PB.PB/EE selector: PB/EE

INPUT SELECT switch: LINE or DUB
For the composite video signal connected to the VIDEO IN connectors, set to LINE.
For the dubbing video signal from the DUB IN connector, set to DUB.

PLAYBACK

--- for connecting a time base corrector

Rear panel



SERVO LOCK selector: AUTO
To synchronize with an external
reference signal, set to EXT SYNC.

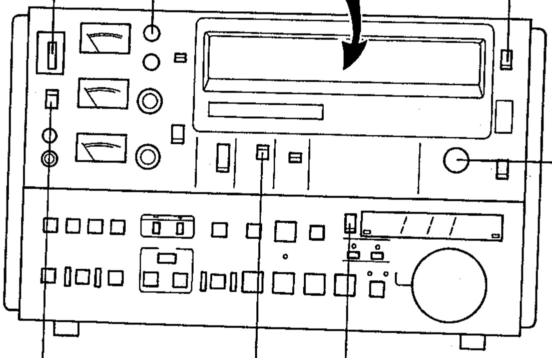
Video output

Monitor output

Audio output

AC power source

Front panel



TRACKING control: FIXED

POWER switch: ON

Insert a recorded cassette.

REMOTE/LOCAL selector: LOCAL

SKEW control: FIXED

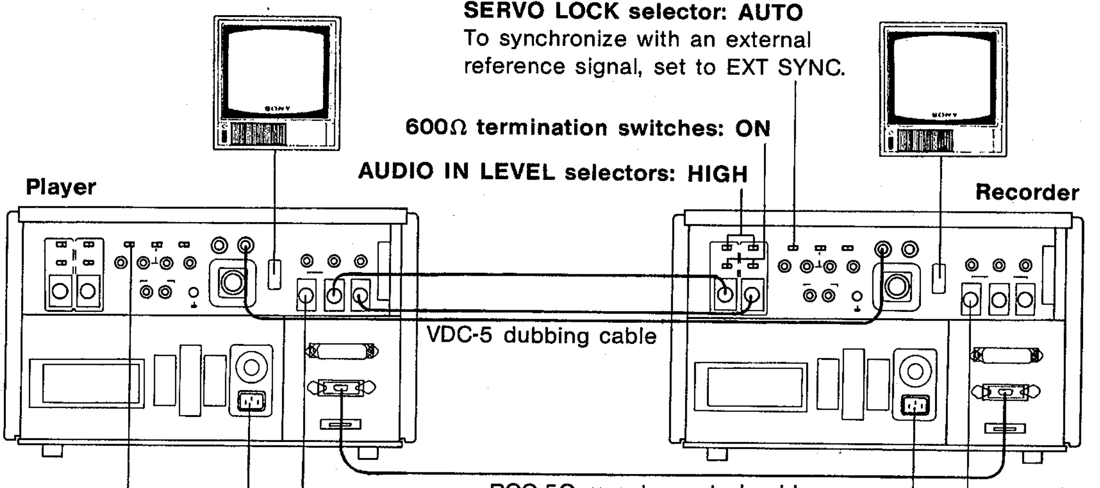
AUDIO MONITOR selector: MIX

PB.PB/EE: PB

MODE SELECT switch: NORMAL

EDITING - Editing with two BVU-850Ps -
—— connecting a source for live edit

Rear panel



SERVO LOCK selector: AUTO
To synchronize with an external reference signal, set to EXT SYNC.

600Ω termination switches: ON

AUDIO IN LEVEL selectors: HIGH

Monitor output

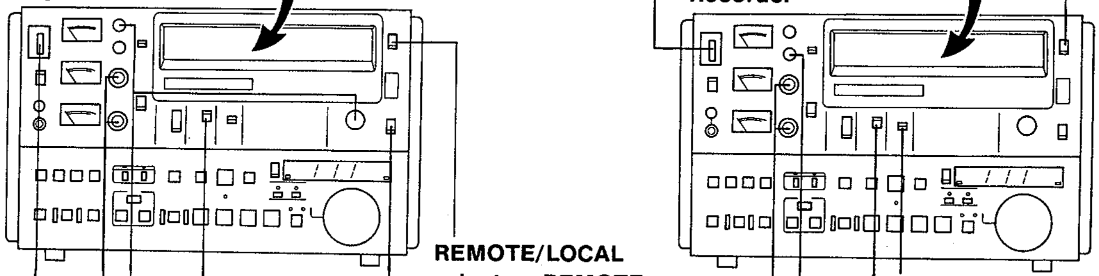
AC power source

Monitor output

AC power source

SERVO LOCK selector: AUTO
To synchronize with an external reference signal, for example, to synchronize with the standard reference signal in studio, set to EXT.

Front panel



Insert a recorded cassette.

POWER switch: ON

REMOTE/LOCAL selector: LOCAL
The buttons on the control panel of the recorder control both the player and the recorder.

Insert a cassette.

REMOTE/LOCAL selector: REMOTE
The buttons on the control panel of the player do not function.

REMOTE-1/REMOTE-2 selector: REMOTE-1

MODE SELECT switch: EDIT

Adjust tracking and skew, if necessary. (See page 1-19.)

Adjust the audio playback level. (See page 1-19.)

POWER switch: ON

INPUT SELECT switch: DUB
When the video signal is connected to the VIDEO IN connector, set to LINE.

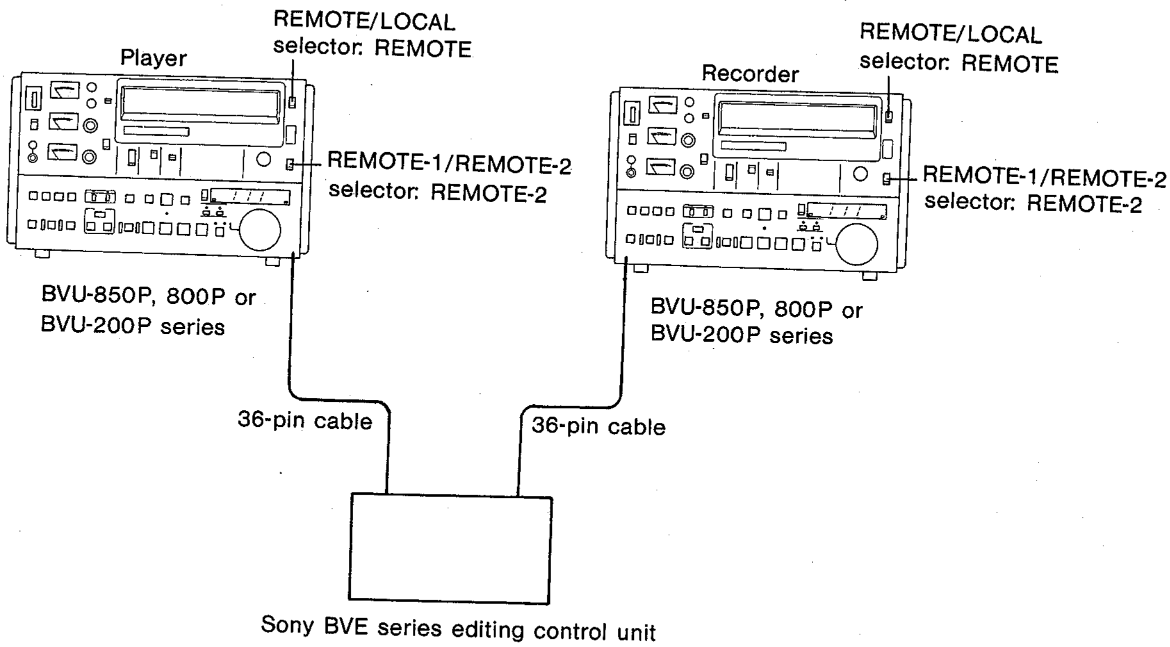
MODE SELECT switch: EDIT

Adjust the video recording level. (See page 1-15.)

Adjust the audio recording level. (See page 1-15.)

- Do not make simultaneous (parallel) connections with the DUB IN connector on the player and DUB OUT connector on the recorder.

EDITING - Editing with a control unit -


Player
REMOTE/LOCAL selector: REMOTE
REMOTE-1/REMOTE-2 selector: REMOTE-2
BVU-850P, 800P or BVU-200P series
Recorder
REMOTE/LOCAL selector: REMOTE
REMOTE-1/REMOTE-2 selector: REMOTE-2
BVU-850P, 800P or BVU-200P series
36-pin cable
36-pin cable
Sony BVE series editing control unit

- Do not make simultaneous (parallel) connections with the DUB IN connector on the player and the DUB OUT connector on the recorder.
- For the live source connection, see the previous pages.
- The video cassette recorder with 36 pin connector can be connected other than the BVU-850P, but the function is limited according to the function of the machine.

2-5. INPUT/OUTPUT SIGNAL OF THE CONNECTOR

Input and output signals of the main connectors on the connector panel are follows:

INPUT

VIDEO IN : 1.0 Vp-p +1.0 -0.5V, sync negative, 75 ohms, unbalanced

DUBBING IN : Luminance signal: 0.5 Vp-p, sync negative, impedance 75 ohms ± 10%
Chroma signal: 0.5 Vp-p, impedance 75 ohms ± 10%

EXT. SYNC IN : 0.2 Vp-p to 5 Vp-p, negative, 75 ohms, unbalanced (1 Vp-p ± 0.2V with VIDEO input)

SC IN : 2 Vp-p ± 1V, 75 ohms, unbalanced

AUDIO IN : MIC: -60 dB, 3k ohms, balanced (matches 600 ohm microphone)
LINE: +4 dB, 10k ohms/600 ohms, balanced

TIME CODE IN : 0 dB ± 6 dB, 10k ohms, unbalanced (0 dB = 1.55 Vp-p pulse)

OUTPUT

VIDEO OUT : 1.0 Vp-p, ± 0.2V, sync negative, 75 ohms, unbalanced

DUBBING OUT : Luminance signal: 0.5 Vp-p, sync negative, impedance 75 ohms ± 10%
Chroma signal: 0.5 Vp-p, impedance 75 ohms ± 10%

RF OUT (OFF TAPE) : 0.5 Vp-p ± 0.1V, 75 ohms, unbalanced

AUDIO OUT : LINE : +4 dB, low impedance, balanced (600 ohms load permissible)
MONITOR :+4 dB, 600 ohm load, balanced
HEADPHONES : -46 dB to -26 dB, 8 ohms load, binaural

TIME CODE OUT: 0 dB ± 3 dB, low impedance, unbalanced (0 dB = 1.55 Vp-p pulse)

REMOTE CONTROL

REMOTE 1 (9P)

Pin	Description	I/O
1	Frame Ground	—
2	Transmit A	O
3	Receive B	I
4	Recieve Common	—
5	Spare	—
6	Transmit Common	—
7	Transmit B	O
8	Recieve A	I
9	Frame Ground	—

REMOTE 2 (36P)

Pin	I/O Signal
1	UNREG 5V
2	L-FF COMMAND IN (Pulse width is more than 5 msec.)
3	L-FWD COMMAND IN (Pulse width is more than 5 msec.)
4	L-REW COMMAND IN (Pulse width is more than 5 msec.)
5	L-EJECT COMMAND IN (Pulse width is more than 5 msec.)
6	L-STOP COMMAND IN (Pulse width is more than 5 msec.)
7	L-PAUSE COMMAND IN (Pulse width is more than 5 msec.)
8	L-REC COMMAND IN (Pulse width is more than 5 msec.)
9	L-CUT IN COMMAND IN (Pulse width is more than 5 msec.)
10	L-EDIT COMMAND IN (Pulse width is more than 5 msec.)
11	L-CUT OUT COMMAND IN (Pulse width is more than 5 msec.)
12	L-FF STATUS OUT
13	L-FWD STATUS OUT
14	L-REW STATUS OUT
15	L-STANDBY STATUS OUT
16	L-STOP STATUS OUT

Pin	I/O Signal
17	L-PAUSE STATUS 1 OUT
18	L-REC STATUS OUT
19	L-INSERT STATUS OUT
20	L-VIDEO INSERT IN
21	L-AUDIO 1 INSERT IN
22	L-AUDIO 2 INSERT IN
23	L-REVERSE COMMAND IN
24	SPEED A IN
25	SPEED B IN
26	L-CTL PULSE OUT (Pulse width is 470 msec.)
27	L-TACH OUT
28	L-CAPSTAN OUT
29	SYNCHRONIZE IN
30	NC
31	H-NORMAL FWD IN
32	L-PAUSE STATUS 2 OUT
33	L-SEARCH COMMAND IN ("L" level during shuttle or jog mode.)
34	NC
35	GND
36	NC

TBC

Pin	I/O Signal
A	EXT SYNC IN (X)
B	GND
1	VIDEO OUT (X)
2	VIDEO OUT (G)
3	NC
4	NC
5	NC
6	DOC PULSE OUT (X)
7	DOC PULSE OUT (G)
8	H-PLAY STS OUT
9	DUB C OUT (X)
10	NC
11	NC
12	NC
13	DUB Y OUT (X)
14	DUB Y OUT (G)
15	NC
16	NC

2-6. CONNECTION CONNECTOR

When external cables are connected to the various connectors on the BVU-850P connector panel during the installation or the maintenance, hardwares as stated below or the equivalents must be used.

Panel Indication	Connection Connector
VIDEO IN EXT. SYNC IN SC IN VIDEO OUT 1 VIDEO OUT 2 RF (OFF TAPE)	1-560-069-11 PLUG, BNC, MALE
DUB IN	1-561-055-00 PLUG, 7P, FEMALE
DUB OUT	1-508-948-00 PLUG, 7P, MALE
AUDIO IN	1-508-084-00 CONNECTOR, 3P, MALE
AUDIO OUT	1-508-083-00 CONNECTOR, 3P, FEMALE
TIME CODE	1-560-069-11 PLUG, BNC, MALE
MONITOR	1-506-161-00 CONNECTOR, 8P, MALE
TBC	1-508-495-00 PLUG, 9P, MALE
REMOTE 2 (36P)	1-508-852-00 CONNECTOR, 36P MALE
REMOTE 1 (9P)	1-560-651-00 PLUG, 9P (M) and 1-561-749-00 JUNCTION SHELL, 9P

2-7. SELECT SWITCH SETTING

Along with the select switches on the control panel and the connector panel, the switches listed below are on the circuit boards. The functions of these switches on the circuit boards are described and the switches must be used according to systems and conditions.

.MD-25 Board

(1) S1: HIGH FREQUENCY ON/OFF Switch

This switch is used for the electical alignment.

When the set is shipped, the HIGH FREQUENCY ON/OFF Switch is set to the OFF position.

.YD-17 Board

(1) S101: VIDEO DROPOUT DETECTOR ENABLE Switch

When this switch is set to the OFF, the processor circuit is disable. When this switch is set to ON, if the negative going transient pulse appears below the pedestal level, the video dropout detector circuit compensates the dropout portion with one H before signal. When the set is used under the microwave transmission without TBC, this switch should be set to ON.

When the set is shipped, the VIDEO DROPOUT DETECTOR ENABLE Switch is set to the OFF position.

(2) S201: BEAT CANCELLER Switch

When this switch is set to OFF, the secondary harmonic beat canceller circuit functions.

When the set is shipped, the BEAT CANCELLER Switch is set to the OFF positioon.

.YC-19 Board

(1) S201: CHROMA PROCESSOR Switch

When the chroma level of the fine pitch vertical strip portion decreases under the composite dubbing mode, this switch is set to the ON. Then, chroma level keeps to the correct level, but the cross color is more remarkable than this switch is set to the OFF mode.

shipped

When the set is ~~shipped~~, the CHROMA PROCESSOR Switch is set to the OFF position.

– " – is enabled !

.CD-29 Board

(1) S301: ENHANCER Switch

When this switch is set to the ON, the chroma enhancer circuit functions.

When the set is shipped, the ENHANCER Switch is set to the ON position.

(2) S501: NOISE CANCELLER Switch

When this switch is set to the ON, the chroma noise canceller circuit functions.

When the set is shipped, the NOISE CANCELLER Switch is set to the ON position.

.AU-62 Board

(1) S1

Bit1: DOLBY AUTO/MANUAL SELECT Switch

This switch selects that the DOLBY circuit operates under the automatic detection mode or the manual detection mode.

ON : Manual detection mode.
OFF: Automatic detection mode.

When the set is sipped, the DOLBY AUTO/MANUAL SELECT Switch is set to the OFF position.

Bit2: CH-1 DOLBY ON/OFF Switch

This switch selects the DOLBY circuit at CH-1 side operates or not under the Bit1 is ON position.

ON: DOLBY circuit at CH-1 side operates.

When the set is shipped, the CH-1 DOLBY ON/OFF Switch is set to the OFF position.

Bit3: CH-2 DOLBY ON/OFF Switch
This switch selects the DOLBY circuit at CH-2 side operates or not under the Bit1 is ON position.
ON: DOLBY circuit at CH-2 side operates.
When the set is shipped, the CH-2 DOLBY ON/OFF Switch is set to the OFF position.

Bit4: PILOT SIGNAL ON/OFF Switch
ON: Pilot signal dose not record.
When the set is shipped, the PILOT SIGNAL ON/OFF Swutch is set to the OFF position.

.AU-63 Board

(1) S1: CH-1 HEAD TUNING Switch
Select either ON or OFF according to the characteristics of the audio head.

(2) S2: CH-2 HEAD TUNING Switch
Select either ON or OFF according to the characteristics of the audio head.

.SY-37A Board

(1) S1: RESET Switch

(2) S2

Bit1: SYNCHRONIZE Switch
In PREVIEW or AUTO EDIT mode, recorder will perform synchronization to the player by SEARCH mode between PREROLL-point and IN-point (VTR synchronization). This switch select either to use this function or not. Because synchronization will be performed by recorder, this switch of the player dose not be effected.
ON: Perform synchronization.
PREROLL TIME will be adjusted to 10 seconds automatically and PREROLL TIME switch will be nullified.
OFF: No synchronization.
When the set is shipped, the SYNCHRONIZE Switch is set to the OFF position.

Bit2: SEARCH DIAL Switch
There are two ways to set up the SHUTTLE mode from the play mode.
(i) SEARCH dial is turned directly without pressing the SHUTTLE button in the PLAY mode.
(ii) The SHUTTLE button is pressed in the PLAY mode.
The SEARCH DIAL Switch selects above two system (i) or (ii).
ON : system (i)
OFF: system (ii)
When the set is shipped, the SEARCH DIAL Switch is set to the ON position.
When the BVU-850P is used as the playback machine (such as on air), it is recommended to use the second method (the switch is in the OFF position) to avoid accidental mode switching.

Bit3: PREROLL TIME Switch
Selects 5 seconds or 10 seconds for the preroll time at the editing.
ON : 5 seconds
OFF: 10 seconds
When the set is shipped, the PREROLL TIME Switch is set to the OFF position.

(3) S3: KEY Select Switch
The function of the BVU-850P can be controlled by either Controll Panel of the unit or Optional Control Panel (BK801). Two 40pin flat cable connectors were equipped on the SY-37A Board in order to connect both Control Panel.
This switch selects one Function Control Panel from above two.
This switch is set to front side:
CN31 is selected.
This switch is set to back side:
CN32 is selected.
When the set is shipped, the KEY Select Switch is set to the CN31 is selected position.

(4) S5

Bit1: EIA/CCIR Select Swtich

This switch selects the EIA mode or the CCIR mode for the TIMER DISPLAY.

ON : CCIR mode

OFF: EIA mode

When the set is shipped, the EIA/CCIR Select Swtich is set to the ON position.

Bit3: CTL INDICATOR FUNCTION Select Switch

This switch selects the CTL indicator function during time code mode.

When this switch is set to the OFF position, the following operation can be performed.

(i) When the BK806 (TC-20 Board) is inserted into the set and the set is used in the time code mode or auto mode, the CTL data is displayed on the Counter Display of the BVU-850P by pressing the LAP button twice during 0.6 second. But the time code data still functions.

(ii) When the set is used under the above mentioned mode, and the LAP button is pressed twice during 0.6 second, the above mentioned mode is released, then the time code data is displayed.

.When the REMOTE/LOCAL select switch is reset to the REMOTE mode, the above mentioned mode is also released.

.When the PLAYER button or the RECORDER button on the control panel is pressed, the above mentioned mode is also released.

(iii) When the tape-to-tape editing is performed with no time code signal recorded tape, the time code data is reset by pressing the RESET button. When editing is performed with time code signal recorded tape, the time code data can not reset.

(iv) When the tape is ejected, the time code data and CTL data are not reset automatically, but when the RESET button is pressed, these data are reset.

(v) The display on the player side's VTR is not changed under the data communication with 9 pin cable between two VTRs.

When the set is shipped, the CTL INDICATOR FUNCTION Select Switch is set to the ON position.

Bit4: EDIT TIMING COMPENSATION Switch

This switch compensates the edit timing of audio and/or video signal in the auto edit and/or assemble edit mode. This switch operates under the following conditions.

.The editor must provide the Editing Command Timing Switch such as BVE-800, BVE-1000, BVE-3000A and BVE-5000.

.Editor control is performed by 9 pin.

When performe the edit timing compensation, set this switch to the OFF position, and set the Edit Command Timing Switch on the Editor to -3 frames.

Note: The audio signal is double recorded on the tape at the cut-in point during 2 frames.

When the set is shipped, the EDIT TIMING COMPENSATION Switch is set to the ON position.

Bit5: DTR-2000 SELECT Switch

When the assemble editing is performed with time code signal by DTR-2000 Edting Controller, set this switch to OFF position.

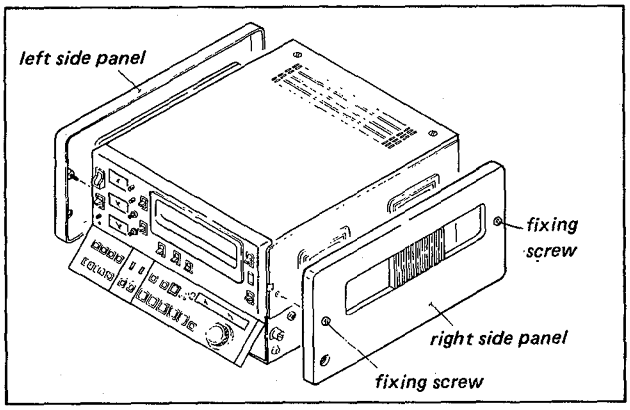
Then continuous time code signal is recorded on the tape at the editing point.

When the set is shipped, the DTR-2000 SELECT Switch is set to the ON position.

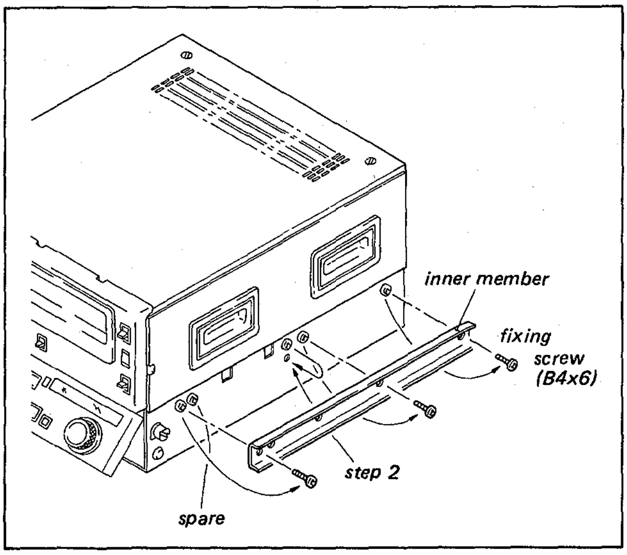
2-8. RACK MOUNTING

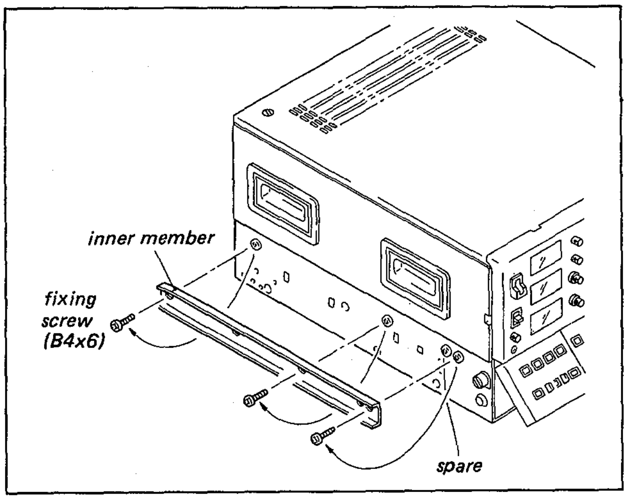
The BVU-850P can be mounted in the 19-inch standard rack. It is recommended to use the optional Rack Mount Kit, BK805 (including the slide rails and the handle brackets) or the following ACCURIDE's slide rail.
RACK-MOUNT SLIDES MODEL 305
SLIDE LENGTH 22 INCH

1. Loosen two fixing screws on the right and the left side panels.
   .Fixing screws will not be detached since it uses a retainer on the inside the cover.

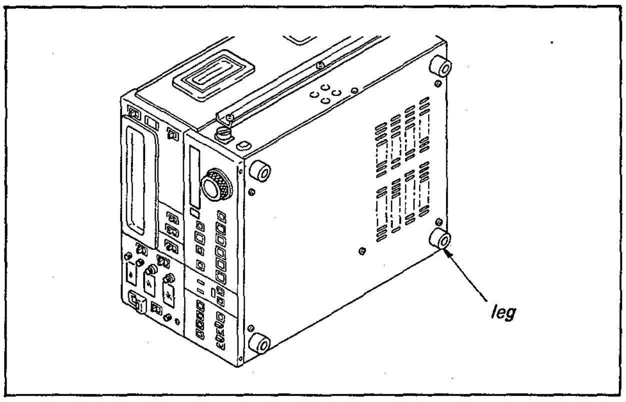

left side panel
fixing screw
right side panel
fixing screw

2. Remove a fixing screw on the chassis (R) as shown in the figure, and thread the fixing screw to a lower hole.
3. Remove the each four fixing screws on the (R) chassis and the (L) chassis.
4. Attach the Inner Members of the Slide Rails to the (R) chassis and the (L) chassis with the screws removed in step (3).
   .Length of the screws used for the attachment is limited. If the screws supplied with the chassis are lost, a screw 6 mm in length (B4x6) must be used.
   .The Inner Member must be fixed at three points with the screws.

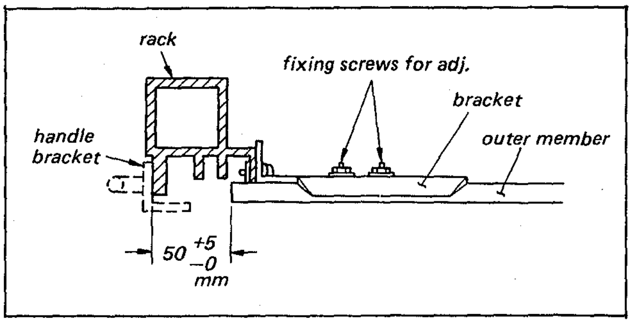

inner member
fixing screw (B4x6)
step 2
spare


inner member
fixing screw (B4x6)
spare

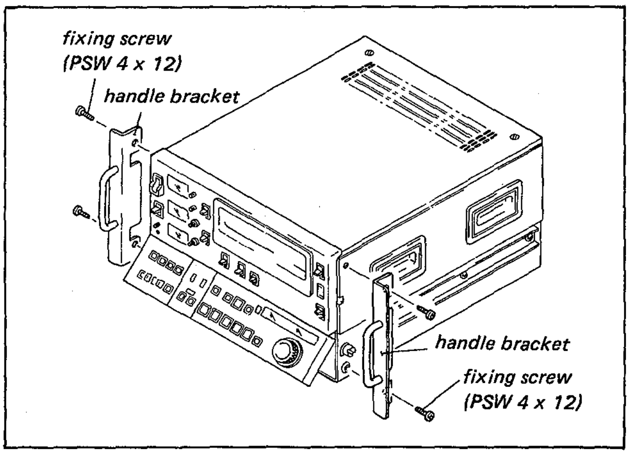
5. Remove four legs located under the set.
   .If the set is mounted in the rack without removing the legs. It will contact the lower set and the upper set cannot be pulled out from the rack.



6. Attach the Outer Member bracket of the Slide Rail to the rack and position from the edge of the Slide Rail to the outside of the rack so that the position satisfies to the specified value.


rack
fixing screws for adj.
bracket
outer member
handle bracket
50 +5 −0 mm

7. Attach the Handle Brackets.

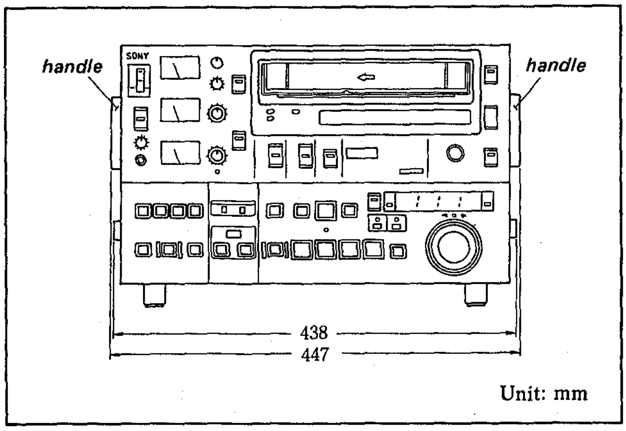

fixing screw (PSW 4 x 12)
handle bracket
handle bracket
fixing screw (PSW 4 x 12)

NOTE:

1. Six sets of the BVU-850P can be mounted on the 19-inch standard rack.

   When the several sets are mounted on the rack, it is recommended to install the fan for ventilation. Good air circulation is essential to prevent internal heat buildup in the rack. 5° C to 40° C environmental condition must be met throughout all units.
2. Be sure to stabilize the rack to the floor to avoid the accidents when the BVU-850P is pulled out.
3. Dimension without side panels are shown in the figure.

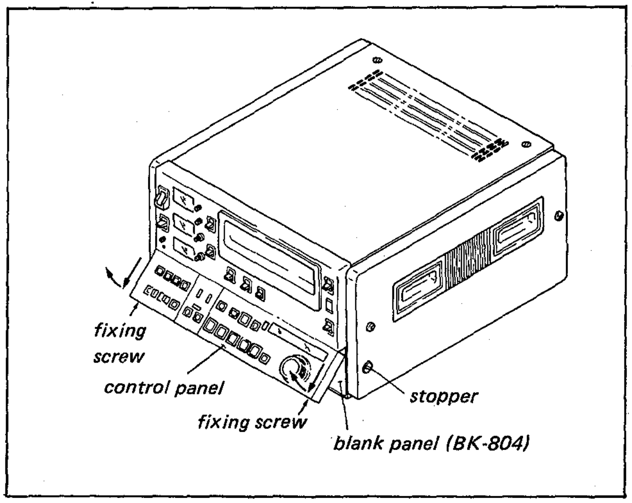
   If the rack front width is narrower than the set width, the set must be mounted after the handles on the right and left made been removed.


handle
SONY
handle
438
447
Unit: mm

2-9. CONTROL PANEL UNIT REMOVAL

When the control panel unit is removed to be used as the remote control unit, perform the following steps.

1. Loosen the Control Panel Stopper on the right and the left side panels. Open the Control Panel.


fixing screw
control panel
fixing screw
stopper
blank panel (BK-804)

2. Remove two fixing screws as shown in the figure and move the Control Panel Unit in the direction shown by the arrows for removal.
3. Remove the Flat Cable on the rear side of the Control Panel.
4. Connect the Optional Flat Cable (5m), BK802. (Refer to Sec. 2-11.)
5. Attach the Optional Blank Panel, BK804.

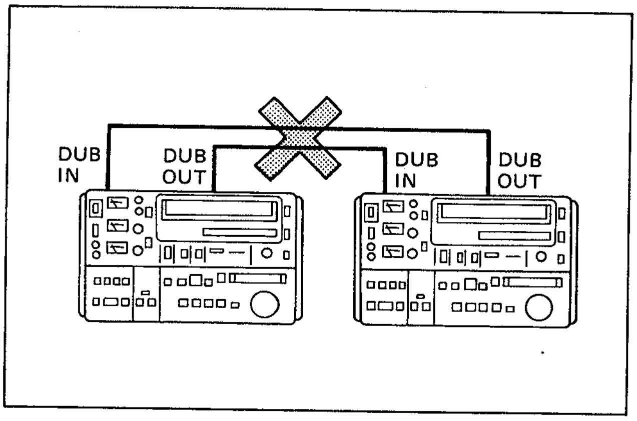
2-10. SUPPLIED ACCESSORY

Supplied BVU-850P accessories are as follows.

1. AC Power Cord
2. Dubbing Cable (VDC-5)

   This cable is utilized when the tape to tape editing and dubbing are used with using the dubbing cable. (length: 5m)

   Only the video signal can be transmitted by this cable and the audio signal does not. For the audio signals the different cables are required.



3. 9 Pin Remote Control Cable

   This cable is used for the remote control from one BVU-850P as a recorder to the other BVU-850P as a player when the two sets of the BVU-850P are used for the tape to tape editing and dubbing.
4. Extension Board (EX-7)

   The BVU-850P main circuit board is a plug-in type which is easy to remove or install. Extension Board, EX-7 is used for check and maintenance of the main board.

   A Extension Board is supplied with the set. However, if it is required to have additional boards, it can be obtained through service organization.

2-11. OPTIONAL ACCESSORY

The followings are provided as the optional accessory.

The suitable accessory should be used for each system.

1. Control Panel (BK801)

   When the BVU-850P is operated from the remote place, the Function Control Panel of the BVU-850P can be separated and functioned as the Remote Controller. And also the other Remote Controller (BK801) is provided as the optional accessory. The BK801 includes the Control Panel and 40P Flat Cable which connects the Control Panel to the BVU-850P.
2. 40P Flat Cable (BK802)

   40P Flat Cable is used for connecting the Control Panel to the BVU-850P, when the Control Panel Unit is separated from the BVU-850P and used as the remote controller.

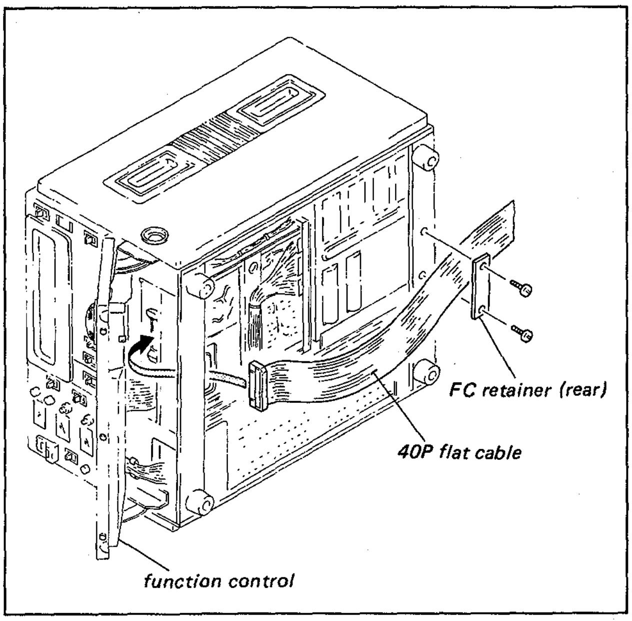
   This cable length is 5m, however in case that the different cable is required, the following cable are recommended.

   Produced by 3M
   3517 Series
   #28 AWG Stranded
   Jacketed/Shielded Flat Cable
   .050" (1.27 mm) Center Spacing
   Number of Conductors: 40

   The Flat Cable can be extended up to maximum 10m (in no interference condition such as an electrical noise).

   Installation:

   1. Open the Function Control Panel.
   2. Remove the Bottom Plate and FC Retainer (rear).
   3. Install the 40P Flat Cable as shown in the figure.



3. Control Panel Case (BK803)
   The BK803 Control Panel Case is the optional unit which houses the Remote Control Panel dismantled from the BVU-850P.
4. Blank Panel (BK804)
   The BK804 Blank Panel is the plate which covers the block of BVU-850P resulted in empty by removing the Control Panel.
5. Rack Mount Kit (BK805)
   The BK805 Rack Mount Kit is used for mounting the BVU-850P on the 19-inch standard rack. This mounting kit consists of two slide-rails and two handle-brackets.
6. Function Panel Rear Cover (BK811)
   The BK811 Function Panel Rear Cover is the plate which covers the rear side of the function control when the control panel is tilted.
7. 9-Pin Remote Control Cable (RCC-5G, RCC-10G, RCC-30G)
   Three kinds of 9-Pin Remote Control Cable are provided.

Type	Length
RCC-5G:	5m
RCC-10G:	10m
RCC-30G:	30m

This Remote Cable connects the 9-Pin Remote Connector on the connector panel to the BVU-850P.

NOTE: The remote cable can be extended up to 1200m.

SECTION 3
TECHNICAL INFORMATION

3-1. SPECIFICATIONS

GENERAL:

MECHANICAL:

Weight : 38 kg
Dimensions : 454 x 283 x 550 mm (w/h/d)
Tape transport mechanism:
U-matic system
Video cassette : KCA, KCS and KSP video cassettes
(3/4-inch cassette)
Tape speed : 9.53 cm/s
Wow/flutter : ±0.25% (DIN)
Record/playback time:
Maximum of 60 min. with
type KCA-60 video cassette
Fast forward time:
Less than 4 min. with type
KCA-60 video cassette
Rewind time : Less than 2.5 min. with type
KCA-60 video cassette
Search speed : SHUTTLE:
Still, 1/30, 1/10, 1/5, 1/2, 1,
2, 5, and 10 times normal in
forward and reverse direction
JOG:
Still to 1 in forward and
reverse direction

CONNECTORS:

AC IN : 3-pin AC connector
VIDEO IN (2) : BNC connectors
VIDEO OUT (2) : BNC connectors
AUDIO IN CH-1/L,CH-2/R:
XLR female connectors
AUDIO OUT CH-1/L,CH-2/R:
XLR male connectors
AUDIO OUT MONITOR:
XLR male connectors
TIME CODE IN : BNC connector
TIME CODE OUT: BNC connector
DUB IN : 7-pin male connector
DUB OUT : 7-pin female connector
SC IN : BNC connector
EXT SYNC IN : BNC connector
RF OUT (OFF TAPE):
BNC connector
TBC : CCY connector
MONITOR OUT : 8-pin connector
REMOTE (36-p) : 36-pin connector
REMOTE (9-p) : RS-422 9-pin connector
HEADPHONES : JM-60 stereo phone jack

Operating temperature:
+5 °C to +40 °C
Storage temperature:
-20 °C to +60 °C

ELECTRICAL:

Power requirements:
AC 100/120/220/240V ±10%
(Selectable) 48 to 64 Hz
Power consumption:
180W
Editing functions:
ASSEMBLE and INSERT (VIDEO,
AUDIO CH-1, AUDIO CH-2) AUTO
EDIT, MANUAL EDIT, PREVIEW,
REVIEW, PREROLL, TRIM

VIDEO:

Video recording system:
Luminance: FM
Chroma: SC low-range
conversion
Input : PAL composite video,
sync negative 1.0 Vp-p
±0.3V, 75 ohms,
unbalanced
Output : PAL composite video,
sync negative 1.0 Vp-p
± 0.2V, 75 ohms unbalanced
Dubbing input : Luminance signal: 0.5 Vp-p
sync negative,
impedance 75 ohms ± 10%
Chroma signal: 0.5 Vp-p
Impedance 75 ohms ± 10%
Dubbing output : Luminance signal: 0.5 Vp-p
sync negative,
impedance 75 ohms ± 10%
Chroma signal: 0.5 Vp-p
impedance 75 ohms ± 10%

Horizontal resolution:
SP mode: 300 lines
(monochrome/color mode)
Conventional mode :
260 lines
(monochrome/color mode)

Signal to noise ratio:
SP mode:
Color mode:
More than 46 dB
Luminance(Y):
More than 49 dB
AM: More than 46 dB
PM: More than 41 dB
Conventional mode:
More than 46 dB
(color mode)

AUDIO:

Input : (MIC) -60 dB, 3k ohms, balanced (matches 600 ohm microphones)
(LINE) +4 dB, 10k ohms/600 ohms, balanced

Output : (LINE) +4 dB, low impedance, balanced (600 ohm load permissible)
(HEADPHONES) -46 to -26 dB, 8 ohm load, binaural
(MONITOR) +4 dB, 600 ohm load, balanced

Distortion : Less than 2.0% (1 kHz reference level)

Frequency response:
SP mode: 50 Hz to 15 kHz ±3 dB
Conventional mode:
50 Hz to 15 kHz ±4 dB

Signal to noise ratio:
SP mode: More than 52 dB (at 3% distortion level, without the audio NR system)
Conventional mode:
48 dB (at 3% distortion level)

TIME CODE : Input: 0 dB ± 6 dB, 10k ohms, unbalanced
(0 dB = 1.55 Vp-p pulse)
: Output: 0 dB ± 3 dB, low impedance, unbalanced
(0 dB = 1.55 Vp-p pulse)

SC Input : 2 Vp-p ± 1V, 75 ohms, unbalanced

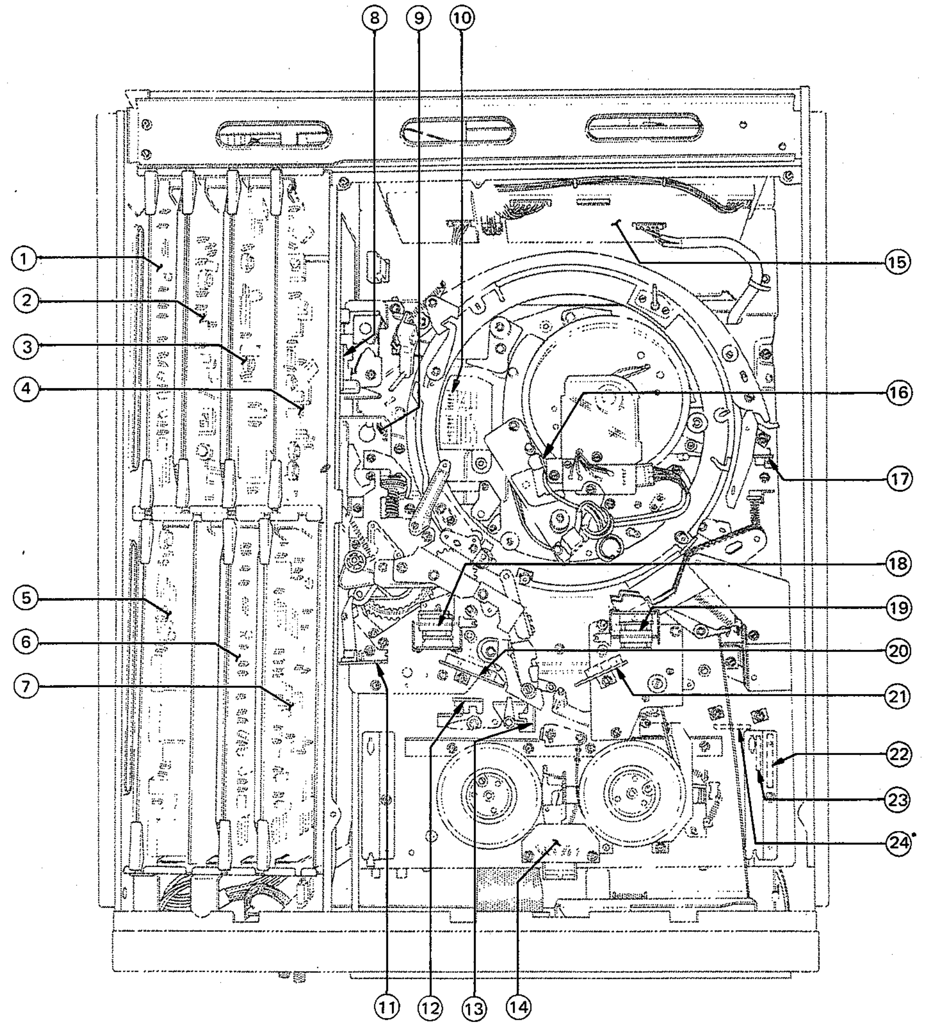
SYNC Input : 0.2 Vp-p to 5 Vp-p, negative, 75 ohms, unbalanced
(1 Vp-p ± 0.2V with VIDEO input)

RF output (OFF TAPE):
0.5 Vp-p ± 0.1V, 75 ohms, unbalanced

3-2. LOCATION OF MAIN PARTS

3-2-1. Location of the Printed Circuit Boards

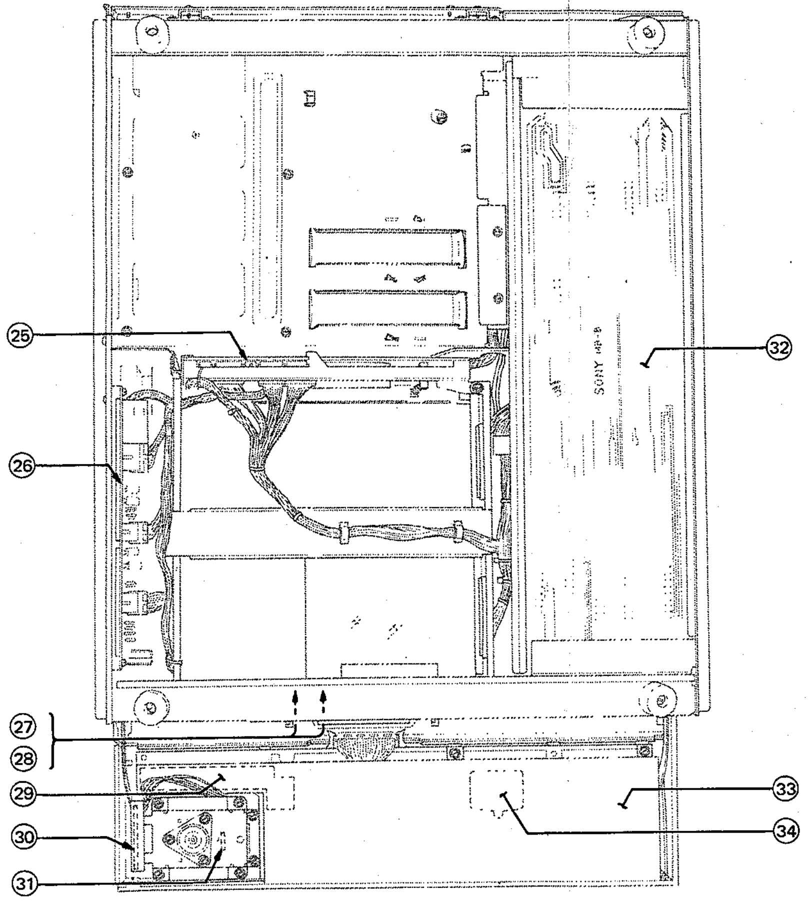
<TOP VIEW>



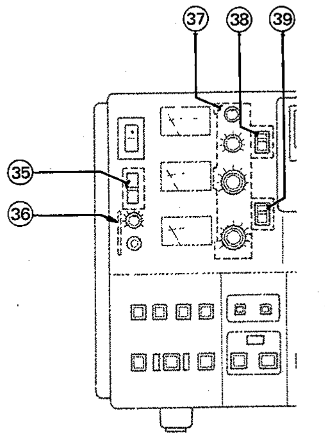
① TC-13 Board
② CD-29 Board (with NR-8 Board)
③ YD-17 and AUD-1, FL-36 Boards
④ MD-25 Board (with YC-19, BC-7
and BC-8 Boards)
⑤ AU-62 Board (with AU-63, DUS-71
and FL-31 Boards)
⑥ RS-3 Board (with RS-4 Board)
⑦ SV-52A Board (with CF-9 Board)
⑧ EK-3 Board
⑨ TM-8 Board
⑩ TM-4 Board
⑪ EK-2 (A) Board
⑫ PC-7 (B) Board

⑬ PC-7 (A) Board
⑭ EM-1 Board
⑮ RP-18 Board
⑯ TC-12 Board
⑰ EK-2 (B) Board
⑱ Take-up Side Tension Detector
(PH-1(A) and LE-4(A) Boards)
⑲ Supply Side Tension Detector
(PH-1(B) and LE-4(B) Boards)
⑳ PC-12 Board
㉑ PC-8 Board
㉒ CC-9 Board (with Cassette-up Compartment)
㉓ CC-11 Board (with Cassette-up Compartment)
㉔ CC-10 Board (with Cassette-up Compartment)

<BOTTOM VIEW>



<FRONT VIEW>

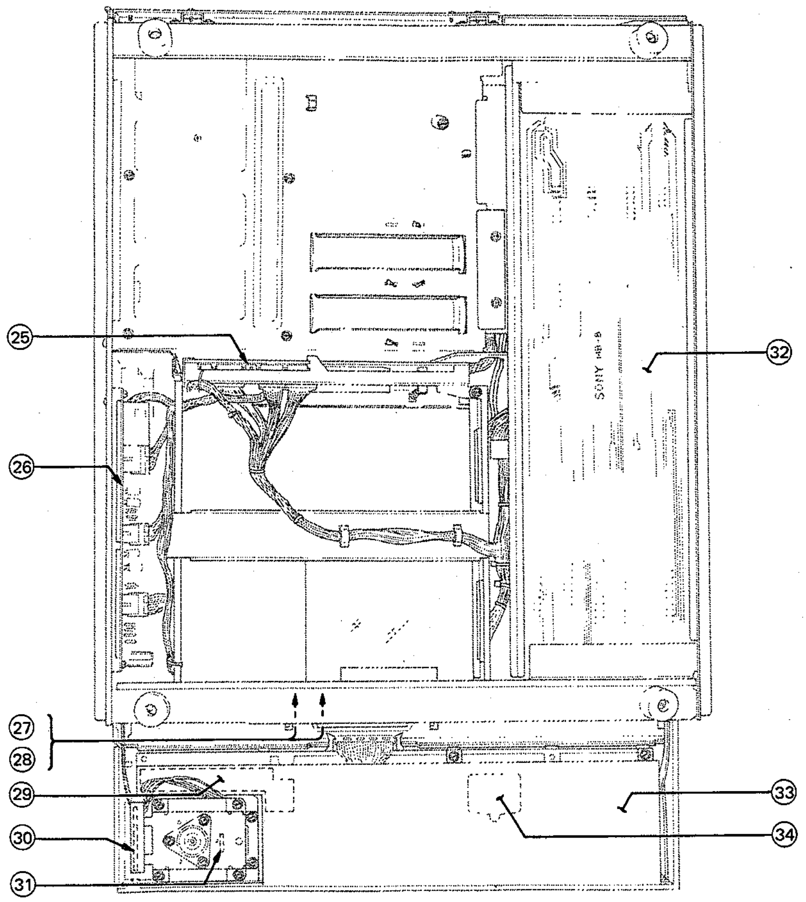


㉕ MB-9 Board
㉖ SY-71 Board
㉗ SY-36 Board
㉘ SY-37A Board
㉙ DP-9 Board

㉚ PC-9 Board
㉛ PC-14 Board
㉜ MB-18-1 Board
㉝ KY-9 Board
㉞ KY-14 Board

㉟ AO-2 Board
㊱ HP-5 Board
㊲ LP-33 Board
㊳ LV-1 Board
㊴ MS-5 (A) Board
㊵ MS-5 (B) Board

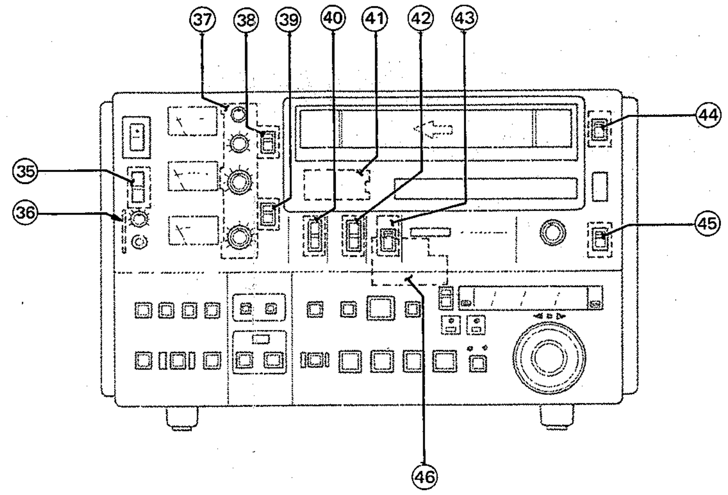
<BOTTOM VIEW>



㉕ MB-9 Board
㉖ SY-71 Board
㉗ SY-36 Board
㉘ SY-37A Board
㉙ DP-9 Board

㉚ PC-9 Board
㉛ PC-14 Board
㉜ MB-18-1 Board
㉝ KY-9 Board
㉞ KY-14 Board

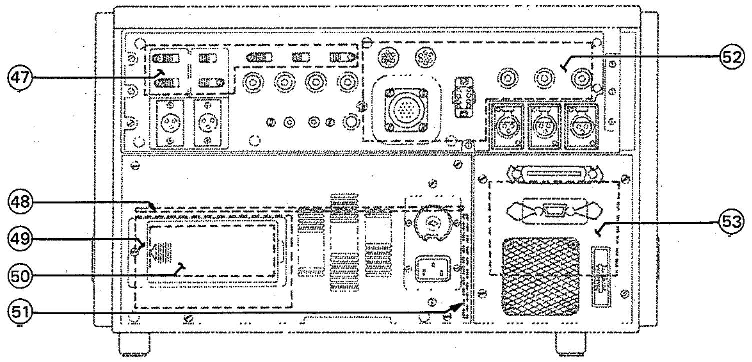
<FRONT VIEW>



㉟ AO-2 Board
㊱ HP-5 Board
㊲ LP-33 Board
㊳ LV-1 Board
㊴ MS-5 (A) Board
㊵ MS-5 (B) Board

㊶ LMP-1 Board
㊷ MS-5 (C) Board
㊸ MS-5 (D) Board
㊹ MS-5 (E) Board
㊺ PR-33 Board
㊻ RE-3 Board

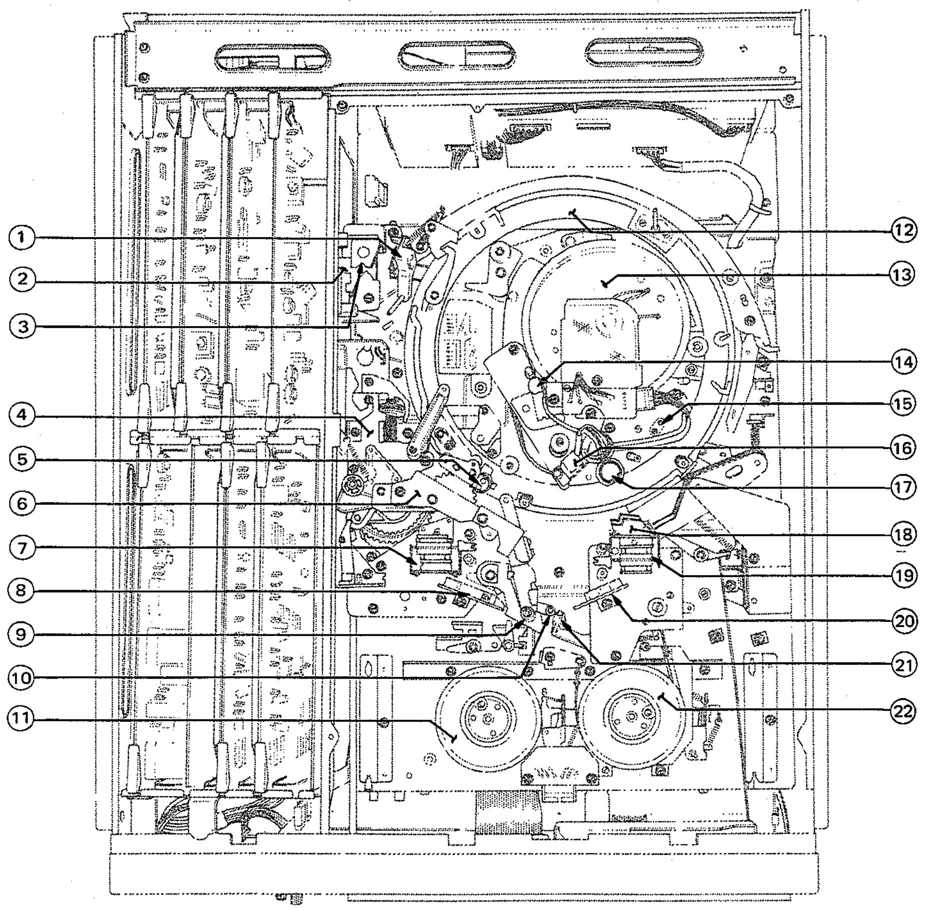
<REAR VIEW>



㊼ CP-93 Board
㊽ PD-14 Board (with DR-8, DR-9, PD-15, PD-17, and PD-21)
㊾ PW-79 Board
㊿ FU-16 Board
(51) PW-50 Board
(52) AO-3 Board
(53) RM-4 Board

3-2-2. Location of the Mechanical Main Parts/Components

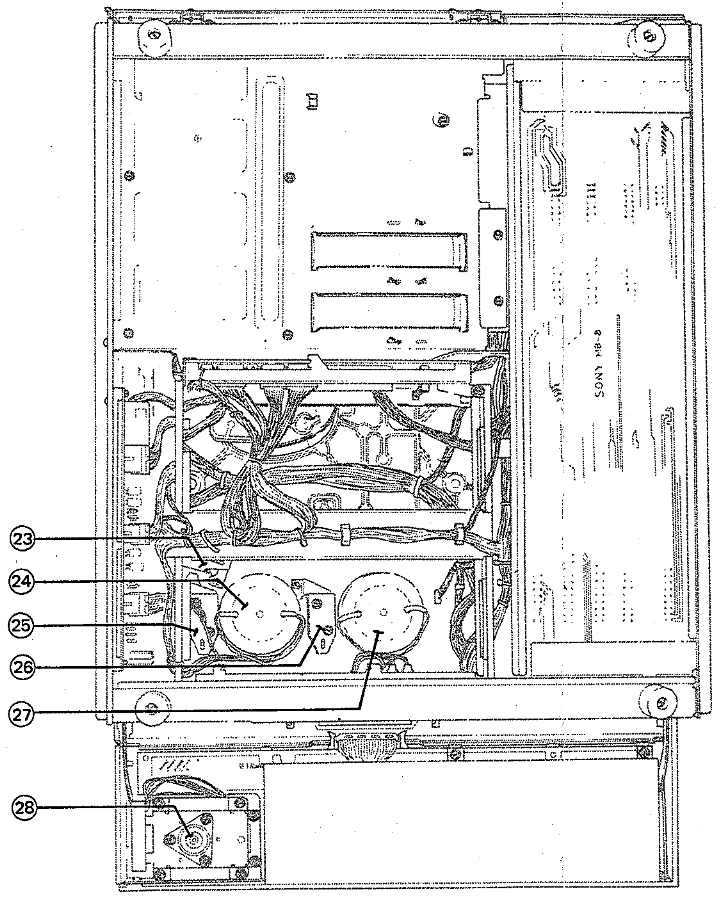
<TOP VIEW>



① Threading Slider
② Thread End 1 Block
③ Threading V Shaped Block
④ Threading Gear Block
⑤ Pinch Roller
⑥ Threading Arm
⑦ Take-up Side Tension Detector Block
⑧ Tape Beginning Detector Block
⑨ Threading Guide
⑩ Take-up Tension Arm
⑪ Take-up Reel Table

⑫ Threading Ring
⑬ Head Drum
⑭ Time Code Head
⑮ Audio/CTL Head
⑯ Full Erase Head
⑰ Capstan Shaft
⑱ Pinch Lever
⑲ Supply Side Tension Detector Block
⑳ Tape End Detector Block
㉑ Supply Tension Regulator Arm
㉒ Supply Reel Table

<BOTTOM VIEW>

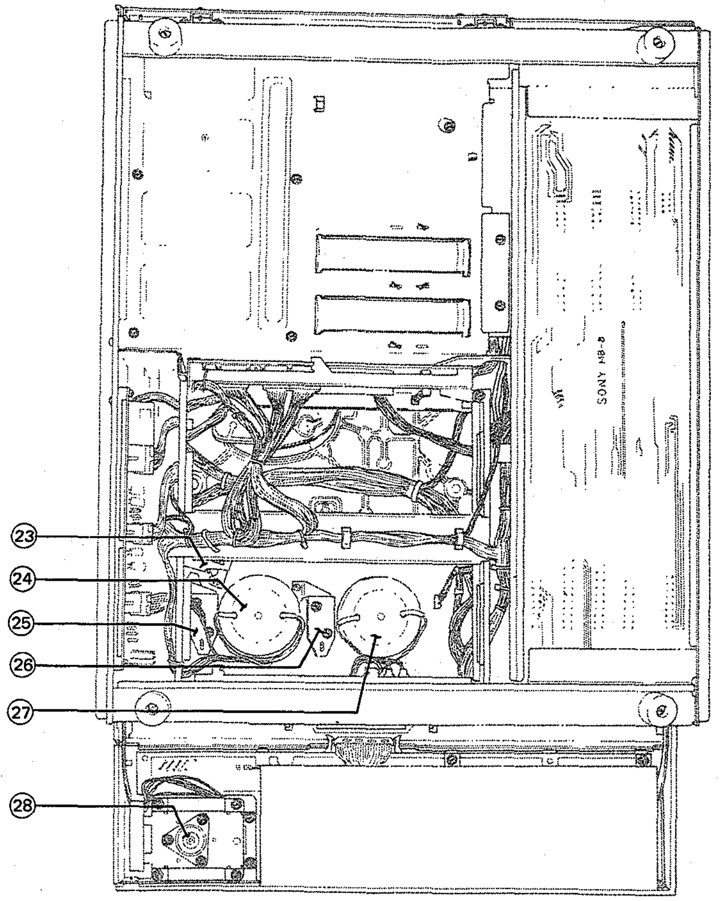


㉓ S Tension Solenoid Block
㉔ Supply Reel Motor
㉕ Supply Reel Brake Solenoid Block
㉖ Take-up Reel Brake Solenoid Block
㉗ Take-up Reel Motor
㉘ Search Dial Block

3-3.

The

<BOTTOM VIEW>



㉓ S Tension Solenoid Block
㉔ Supply Reel Motor
㉕ Supply Reel Brake Solenoid Block
㉖ Take-up Reel Brake Solenoid Block
㉗ Take-up Reel Motor
㉘ Search Dial Block

3-3. PRINTED CIRCUIT BOARDS

The circuit information is provided below.

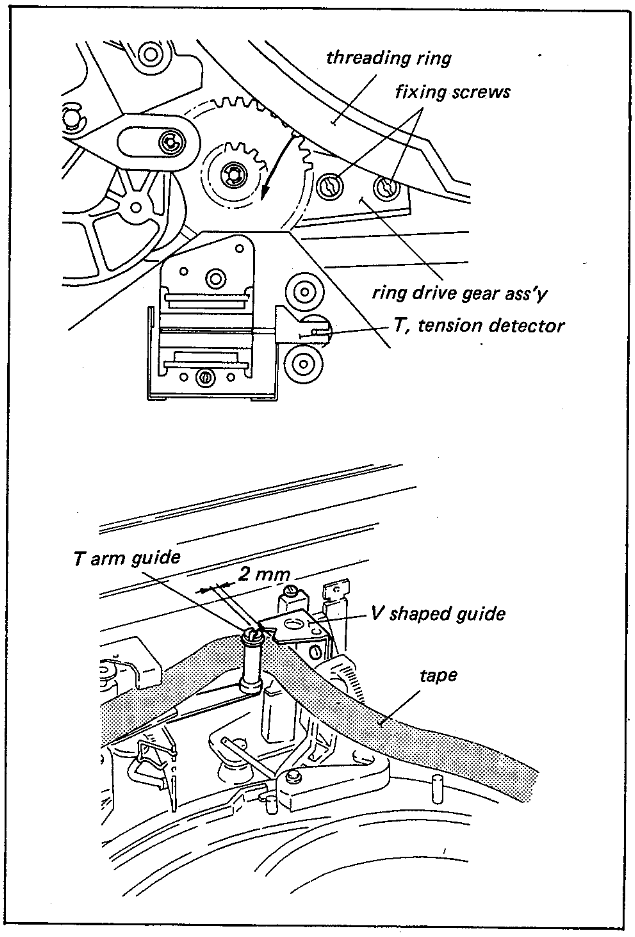
SYSTEM	CIRCUIT BOARD	CIRCUIT FUNCTION
VIDEO	MD-25	· Y/C modulator
	YC-19	· Y/C sep/phase equalizer
	BC-7	· Control timing generator
	BC-8	· Control timing generator
	RP-18	· RF REC/PB amplifier
	YD-17	· Y demodulator
	AUD-1	· Audio FM detector
	FL-36	· HPF
	CD-29	· Chroma demodulator/Enhancer
	NR-8	· Noise reducer
AUDIO	CP-93	· Audio input level select
	CP-92	· Audio input amplifier
	AU-62	· Audio PB/REC amplifier
	DUS-71(A),(B)	
	AU-63	· Audio head amp/bias/erase osc.
	FL-31	
	AO-3	· Audio output amplifier
	AO-2	· Monitor select
	HP-5	· Headphones jack/level control
SERVO	SV-52A	· Drum/capstan PWM servo
	CF-9	· CTL REC/PB amp/color framing
	RS-3	· Reel servo
	RS-4	· Tape tension servo
POWER	PD-14	· Regulator
	DR-9(1),(2)	· Reel motor driver
	PD-15(1),(2)	· REG +12V/+5V
	PD-17	· UNREG
	PD-21	· REG -12V
	DR-8	· Capstan motor driver
	PW-50	· AC rectifier
	PW-79	· Switching regulator
	FU-16	· Fuse
KEY	KY-9	· Function key
	KY-14	· TRIM/ENTRY switch
	DP-9	· Display
	PC-9	· Dial detector
	PC-14	· JOG detector

SYSTEM	CIRCUIT BOARD	CIRCUIT FUNCTION
TIME CODE	TC-13	• Time code REC/PB amplifier • CTL counter • Servo ref. sync selector
SYSTEM CONTROL	SY-36	• Function system control
	SY-37A	• Micro processor
	SY-71	• Motor/solenoid driver
	EK-2(B)	• Thread end detector
	TM-8	• Threading motor
	LP-33	• Audio REC/PB level control
	PR-33	• Remote select
	MS-5(E)	• Remote/local switch
	LMP-1	• Warning lamp
	CC-9	• Cassette in/down detector
	CC-10	• Cassette in/down detector
	CC-11	• Cassette in/down detector
	RM-4	• Remote connector/DC Fan
	RE-3	• T/S reel motor
	PC-12	• Tape beginning/end detector
	PC-8	• Tape beginning/end detector
MOTHER BOARD and OTHERS	MB-9	• Mother board
	EK-3	• Thread end detector
	EK-2(A)	• Unthread end detector
	PC-7(B)	• Miss rec detector
	MB-18-1	• Mother board
	PC-7(A)	• KCA/KCS detector
	PH-1(A),(B)	• S/T reel
	LE-4(A),(B)	• Tension detector
	EM-1	• S/T reel DME
	TM-4	• CTL R/P, TC R/P head
	TC-12	• CTL R/P, TC R/P head
	MS-5(A),(B),(C),(D)	• System switch
	LV-1	• Video level VR

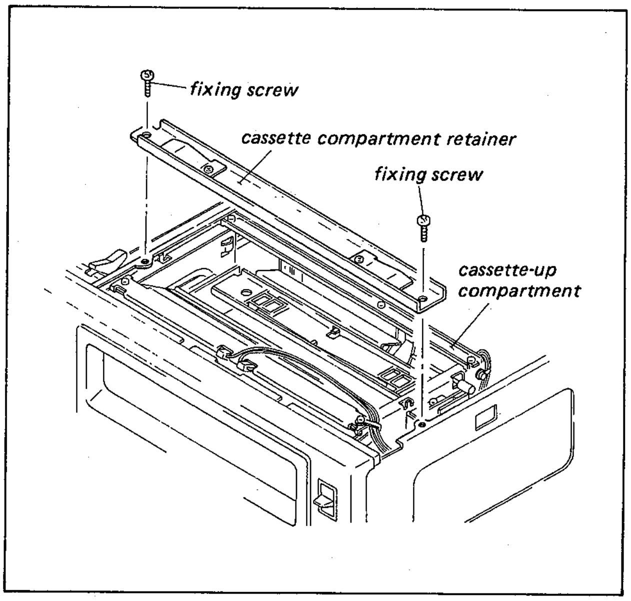
3-4. CASSETTE REMOVAL PROCEDURE WHEN NORMAL EJECTION IS NOT POSSIBLE

If the eject operation becomes impossible due to trouble or the Cassette-up Compartment does not rise when the eject operation takes place, the cassette tape can be removed from the set by the procedures described below.

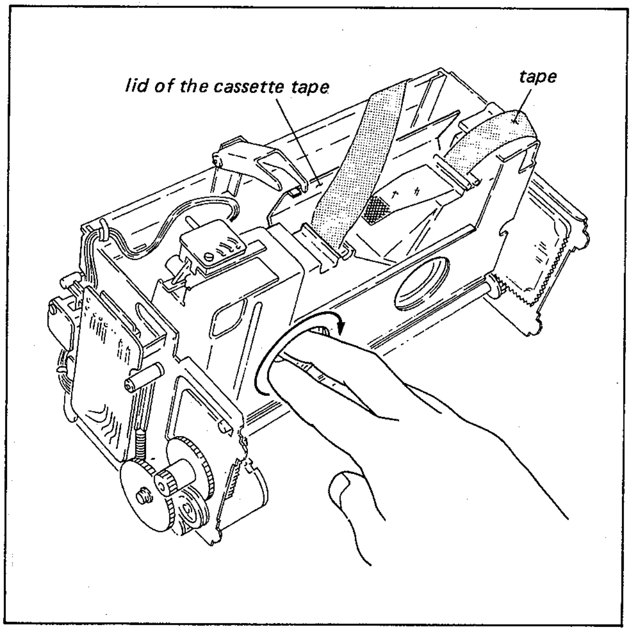
1. Remove the Upper Panel.
2. Loosen the two fixing screws of the Ring Drive Gear Assembly. And move the Ring Drive Gear Assembly in the arrow direction. Turn the Threading Ring by hand in the counter-clockwise direction until the T Arm Guide moves away about 2 mm from the V Shaped Guide.
   (The Threading Ring and the Threading Slider move in the unthreading direction. But the tape remains at the position of the threading completion.)


threading ring
fixing screws
ring drive gear ass'y
T, tension detector
T arm guide
2 mm
V shaped guide
tape

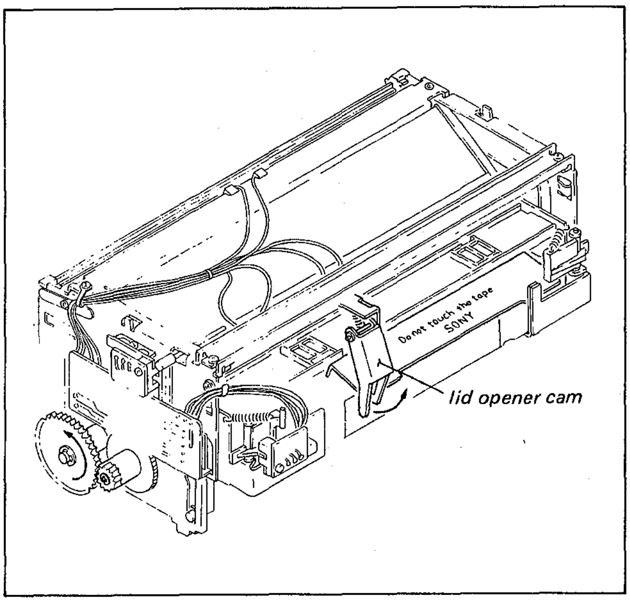
3. Remove the Cassette Compartment Retainer and disconnect the connector on the CC-9 Board.


fixing screw
cassette compartment retainer
fixing screw
cassette-up compartment

4. Bring up the Cassette-up Compartment with the cassette tape in it slowly. Remove the tape remaining in the set carefully so that it is not damaged.
5. Hold the Cassette Tape Lid so that it is not closed. Wind the tape into the cassette tape by turning the Reel Hub on the back of the cassette tape by hand.


lid of the cassette tape
tape

6. Raise the lid Opener Cam and close the Cassette Tape Lid.


Do not touch the tape
SONY
lid opener cam

7. Remove the tape from the Cassette-up Compartment.
8. Turn the Gear on the right side of the Cassette-up Compartment counterclockwise direction by hand in order to place the Cassette-up Compartment into the up state.
9. Locate the cause of the trouble and remedy the problem.

SECTION 4
PERIODIC CHECK AND MAINTENANCE

It is recommended that the following periodic check and maintenance schedule should be employed in order to obtain maximum performance and longer tape life from the BVU-850P.

4-1. PEIODIC CHECK AND MAINTENANCE SCHEDULE

1. Perform the system control operation check in Sec. 4-2 daily before the operation.

2. Perform the maintenance check described separately in accordance with the operating hours of the machine. (Table 4-1)
   The BVU-850P has an hours meter on the connector panel for the periodic check and the maintenance. The hours meter accumulates and records the elapsed time of all the modes in which the drum rotates while the tape is threaded (i.e., the FWD, REV, REC, SHUTTLE, and JOG modes). It is recommended that the hours meter is used as a tool for determining the periodic check. When the hours meter indicates the maximum value, 1000 hours, the hours meter must be replaced with a new one.
   (SONY Part No.: 1-548-141-41)

○:Cleaning ◇:Check ◆:Replacement

Item	Replacement Part No.	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	Remarks
Tape path cleaning (including the video heads)	————	○	○	○	○	○	○	○	○	○	○	Perform whenever repair work is attempted.
Check and adjustment of the supply side and the take-up side tension detectors.	————	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	
Replacement of the pinch roller. (When the BVU-850P is used as the editing machine.)	A-6750-113-D ARM ASSY, PINCH	—	◆	—	◆	—	◆	—	◆	—	◆	
Replacement of the pinch roller (When the BVU-850P is used as the play-back machine (such as on air).)	A-6750-113-D ARM ASSY, PINCH	—	—	—	◆	—	—	—	◆	—	—	
Check the FWD back tension. (Replacement of the brake band.)	X-3668-045-0 BAND ASSY, BRAKE	—	◇	—	◆	—	◇	—	◆	—	◇	
Check the brake torque (Replacement of the brake shoe.)	X-3642-166-0 SHOE ASSY	—	—	—	◇	—	—	—	◆	—	—	
Replacement of the belt of the threading motor assembly.	3-668-173-00 BELT(3), LM	—	○	—	○	—	○	—	◆	—	○	
Replacement of the belt of the cassette compartment.	3-653-387-00 BELT,LM	—	—	—	—	—	—	—	◆	—	—	
Replacement of the brush of the slip-ring assembly.	A-6709-479-A BRUSH (5) ASSY	—	—	—	—	—	—	—	◆	—	—	

NOTE: Regarding overhaul of equipment.
When overhaul of an equipment is attempted, replace parts referring list. For the parts not listed in the following list, such as motors and stationary heads, refer the following items.

Reel Motor :about 3,000H
Capstan Motor :about H
Cassette-up Compartment Motor
:about H
Threading Motor :about H
Audio/CTL Head :about 3,000H
Erase Head :about 4,000H
Time Code Head :about 4,000H

4-2. SYSTEM CONTROL OPERATION CHECK

It is recommended that the following is checked daily before the operation.
The check procedure described here is only for the BVU-850P but can be applied on the operation with the remote control unit.
Note that the switches must be set according to the way the machine is used after the checks.

4-2-1. Play Back, F-FWD, REW, SHUTTLE, JOG and Preroll Function Check

- Thread a recorded tape (Video, Audio CH-1/CH-2). (Do not utilize an alignment tape.)
- Internal switch setting: The following are the procedures when the SEARCH DIAL switch on the SY-37A board is in the OFF position. When it is in the OFF position, the procedure indicated within the double lines is not necessary to perform. (Please refer to further detail informatiion on this switch.)

With switches set to :
POWER :ON
REMOTE/LOCAL :LOCAL
PB/PB/EE :PB
AUDIO MONITOR :MIX

Action	Check that
Insert the cassette.	
Press F.FWD	High speed the playback picture appears and the video and audio are not muted.
Press STOP.	A still picture appears.
Press PLAY.	The playback picture appears. Audio CH-1 and CH-2 are pressnt.
Press SHUTTLE/JOG.	
Turn the Search dial to the right.	The playback speed changes from low to high. When the dial is turned to the position at which a click is felt, the machine enters into the fast forward mode (x10).
Return the dial to the center position.	The still picture appears.
Turn the Search dial to the left.	The reverse playback picture appears. The speed changes from low to high. When the dial is turned to the position at which a click is felt, the machine enters into the rewind mode (x10).
Press the Search dial in.	The still picture appears.
Press ENTRY and IN simultaneously.	IN lamp lights. (The edit-in point is memorized.)
Turn the Search dial to the right.	The forward playback picture in the jog mode appears.
Turn the Serach dial to the left.	The reverse playback picture in the jog mode appears.
Press PREROLL.	The tape moves to 10 seconds prior to the edit-in point and stops. A still picture appears.
Press STANDBY.	STANDBY lamp goes off. Only noise appears on the monitor.
Set the PB/PB/EE switch to PB/EE.	
Press REW.	The tape rewinds. The E-to-E mode picture appears. At the beginning of the tape, the tape stops automatically.
Press EJECT.	The cassette is ejected.

4-2-2. Record Function Check

- . Insert a video cassette tape on which recording can be made.
- . Connect signals to the VIDEO IN, AUDIO IN CH-1 and CH-2 connectors.
- . Connect a video and audio monitor.

With switches set to:

POWER :ON
REMOTE/LOCAL :LOCAL
INPUT SELECT :LINE
PB/PB/EE :PB
AUDIO MONITOR :MIX

Action	**Check that**
Insert the cassette.	
Press REC and PLAY simultaneously.	The recording begins.
Press REW.	The tape rewinds. Rewind the tape to the beginning of recording and stop the tape.
Press PLAY.	Playback of the recorded scene appears. The audio CH-1 and CH-2 are present.
Press REC and hold it down during playback.	E-to-E mode picture appears while the REC is pressed.
Press INSERTs (VIDEO, AUDIO CH-1 and CH-2).	The VIDEO, AUDIO CH-1 and AUDIO CH-2 lamps light.
Press PLAY and EDIT simultaneously.	The manual edit recording will begin.
Press PLAY.	The edit recording will stop, but the tape will continue to run in the playback mode.
Pres STOP.	Still picture of the tape appears.
Press EDIT.	The E-to-E mode picture and audio selected by the INSERT buttons appear.

Set the EE/PB/EE switch to PB/EE.	
Press REW.	The tape rewinds Rewind the tape to the beginning of edit-recording and stop the tape.
Press PLAY.	Playback of the edit-recorded video appears. The audio CH-1 and CH-2 are present.
Press F.FWD.	The tape advances rapidly and stops at the end of the tape. Then the tape rewinds automatically and stops at the beginning.
Press EJECT.	The cassette is ejected.

4-2-3. Editing Function Check

- Install a recorded tape (Video, Audio CH-1/CH-2). (Do not utilize an alignment tape).
- Apply the video and audio CH-1/CH-2 signals.
- The following is the procedure when the SEARCH DIAL switch on the SY-37A board is in the ON position.

With switches set to: POWER :ON
REMOTE/LOCAL :LOCAL
AUDIO MONITOR :MIX

Insert the cassette.	
Press PLAY.	Playback picture appears.
Press Search button. (Search dial at ■ position.)	The still picture appears.
Press ENTRY and IN simultaneously.	Note the counter number of the point (edit-in).
Locate a point for the edit-out point with Search dial.	
Press ENTRY and OUT simultaneously.	Note the counter number of the point (edit-out).
Press INSERTs (VIDEO, AUDIO CH-1 and AUDIO CH-2).	
Press PREVIEW.	Previewing proceeds.
Press IN.	The counter of the edit-in point is displayed.
While pressing IN, press TRIM - ten times.	The counter decreases by ten frames.
Press OUT.	The counter of the edit-out point is displayed.
While pressing OUT, press TRIM + ten times.	The counter increases by ten frames.
Press AUTO EDIT.	Auto edit recording proceeds.
Press REVIEW.	The reviewing of the edit recorded area proceeds.
Press ASSEMBLE.	The ASSEMBLE button lights.
Press AUTO EDIT.	The point where the AUTO EDIT has been pressed is entered as the edit-in point and auto edit recording begins.
Press ENTRY and OUT simultaneously.	The point is entered as the edit-out point and auto edit recording stops.
Press REVIEW.	The reviewing of the edit recorded area is proceeded.
Press REW.	The tape stops at the beginning.
Press EJECT.	The cassette is ejected.

4-3. MAINTENANCE AFTER REPAIRS

Perform the following maintenance after repair without regarding the machine operating hours.

1. Video heads and the rotary erase heads cleaning.
   (Refer to Sec. 4-5-1.)
2. Tape movement area cleaning.
   (Refer to Sec. 4-5-2.)

4-3-1. Cleaning Procedure of the Video Heads and the Rotary Erase Heads

With the power OFF. Press the cleaning piece moistened with the cleaning fluid and turn the drum slowly with hand, cleaning the video heads and the rotary erase heads. (Do not exert too much pressure.)

NOTE: Never move the cleaning piece in the vertical direction of the head tip in the cleaning. It may to damage the head tips.

4-3-2. Cleaning Procedure of Tape Movement Areas

Wipe the tape bearing surface (of the Tape Guides, Drum, Stationary Heads, Capstan Shaft, and the Pinch Roller) with a piece of cleaning piece moistened with the cleaning fluid.

Cleaning fluid: Sony Part No. Y-2031-001-0

Cleaning piece: Sony Part No. 2-034-697-00

NOTE: Don't clean the surface Condensation Sensor on the Lower Drum with the cleaning cloth moistened with the cleaning fluid. Clean the surface with dry cloth.

4-3-3. Head Degaussing

It is recommended to damagnetize the Rotary Heads and the Stationary Heads with demagnetizer when using as a playback machine.

Demagnetizer: Sony HE-4

- Bring the tip of the Demagnetizer as close as possible to the Head Tip without actually contacting it. Draw Demagnetizer very slowly and turn OFF Demagnetizer when it is at least three feet away from the machine.

4-3-4. Cleaning of Slip-Rings and Brushes

The Head Drum Assembly Slip-rings and the Brushes do not required periodical cleaning. However if a dust adheres on the Slip-rings or the Brushes, clean the Slip-rings or the Brushes as follows.

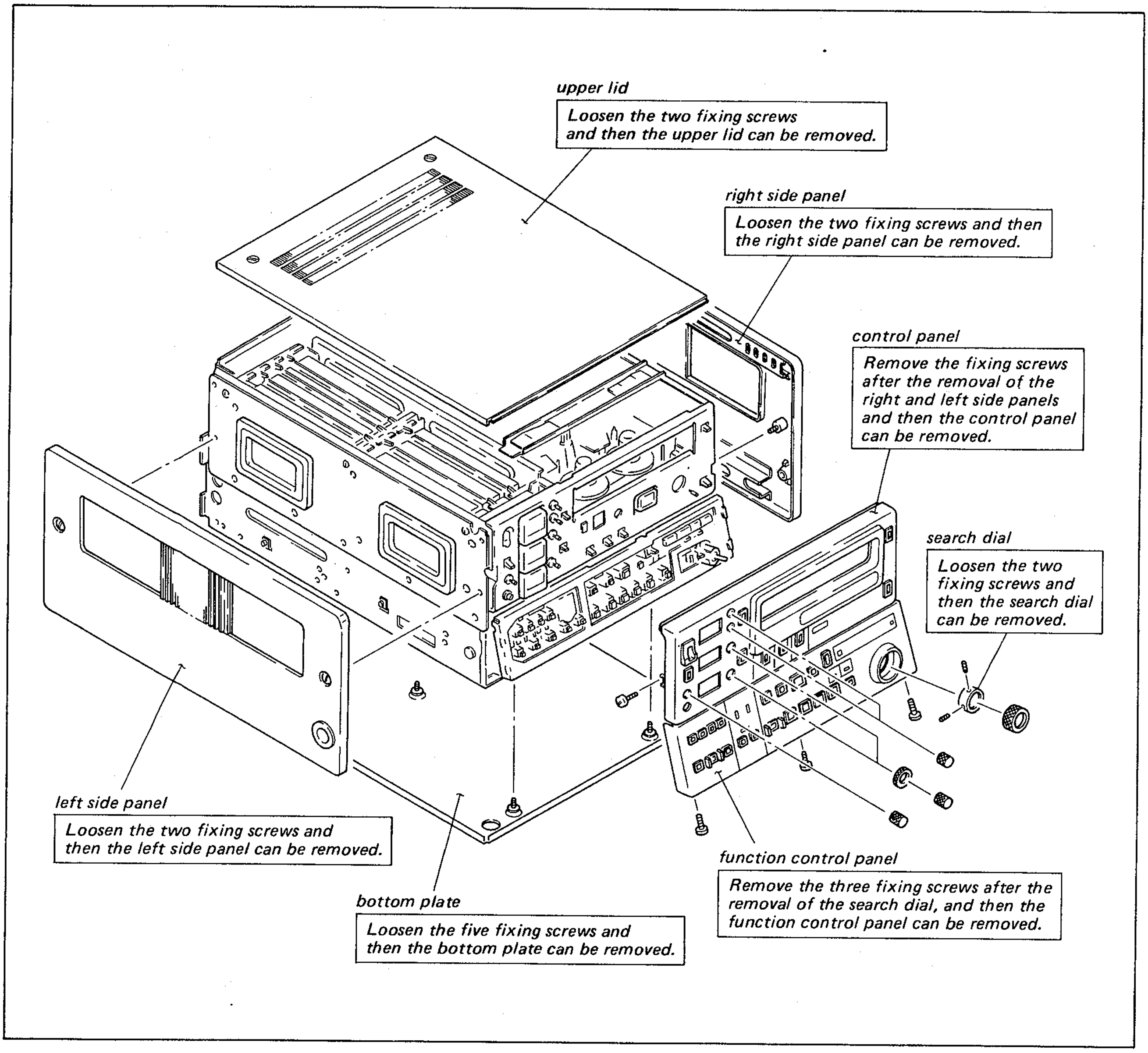
1. Clean the Slip-ring or the Brush by using Soft Brush which has short hairs. If this Brush can not obtained, use a Blower Brush and Cotton Swab.
2. Cleaning fluid is not necessary. However if it is difficult to remove persistent debris, use Freon as cleaning agent.

NOTE:

1. Do not use the alcohol as a cleaning fluid. If the Slip-ring and the Brushes are cleaned with alcohol, the surface tend to attract material which may increase the resistance at the contact area.
2. Do not use conductive grease.

SECTION 5
SERVICE INFORMATION

5-1. REMOVAL OF CABINET



upper lid

Loosen the two fixing screws and then the upper lid can be removed.

right side panel

Loosen the two fixing screws and then the right side panel can be removed.

control panel

Remove the fixing screws after the removal of the right and left side panels and then the control panel can be removed.

search dial

Loosen the two fixing screws and then the search dial can be removed.

left side panel

Loosen the two fixing screws and then the left side panel can be removed.

function control panel

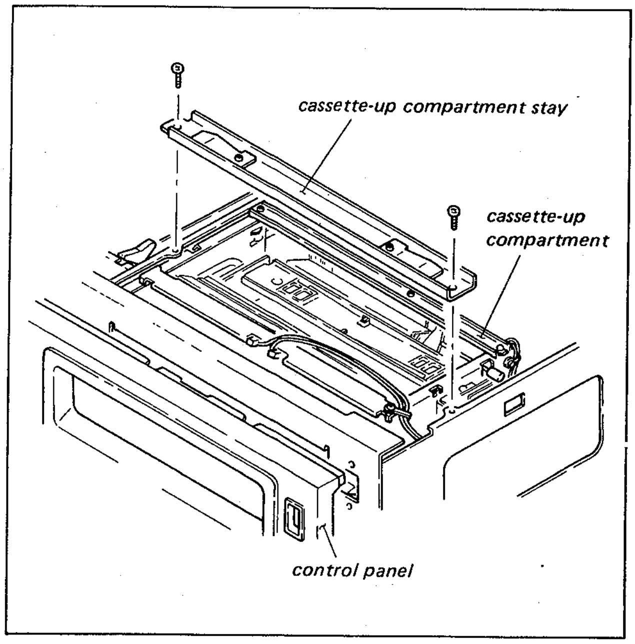
Remove the three fixing screws after the removal of the search dial, and then the function control panel can be removed.

bottom plate

Loosen the five fixing screws and then the bottom plate can be removed.

5-2. REMOVAL OF CASSETTE-UP COMPARTMENT

1. Remove the Upper Panel, each side Ornamental Panels, and the Control Panel.
2. Remove the Cassette-up Compartment Stay.
3. And bring up the Cassette-up Compartment from the machine.



5-3. SPARE PARTS

1. Safety Related Components Warning.
   Components identified by shading and marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation.
   Replace these components with the Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.
2. Replacement Parts supplied from the Sony Parts Center will sometimes have a different shape from the original parts. These differences are for accommodating improved parts and/or engineering changes or standardization of genuine parts.
   This manual's exploded views and electrical spare parts list indicate the part numbers of the standardized genuine parts at the present time. Regarding engineering part changes in our engineering department, refer to Sony service bulletins and service manual supplements.
3. The parts marked with "s" in the SP column of the exploded views and electrical spare parts list are normally stocked for replacement purposes. The parts marked with "o" in the SP column are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

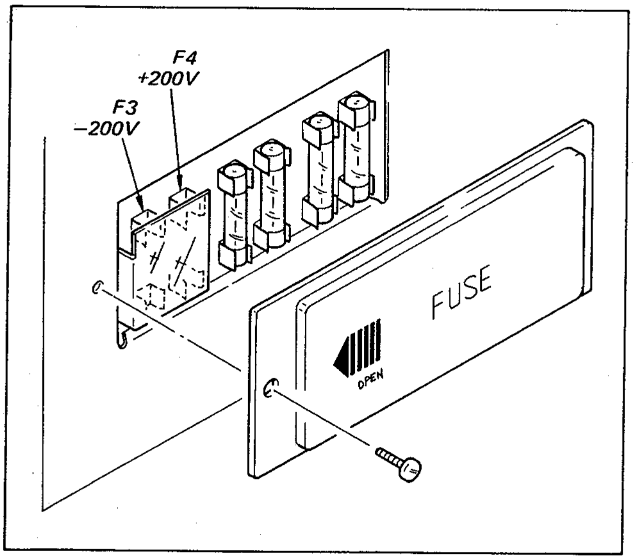
5-4. EXTENSION BOARD

The Amp chassis printed circuit boards can be serviced using a Extension Board. Simply insert the Extension Board into the Amp chassis and connect the circuit board to be serviced to the end of the Extension Board.

(CAUTION)
Be sure to turn OFF power before inserting or removing Extension Board or printed circuit boards.

5-5. CAUTION OF HIGH VOLTAGE

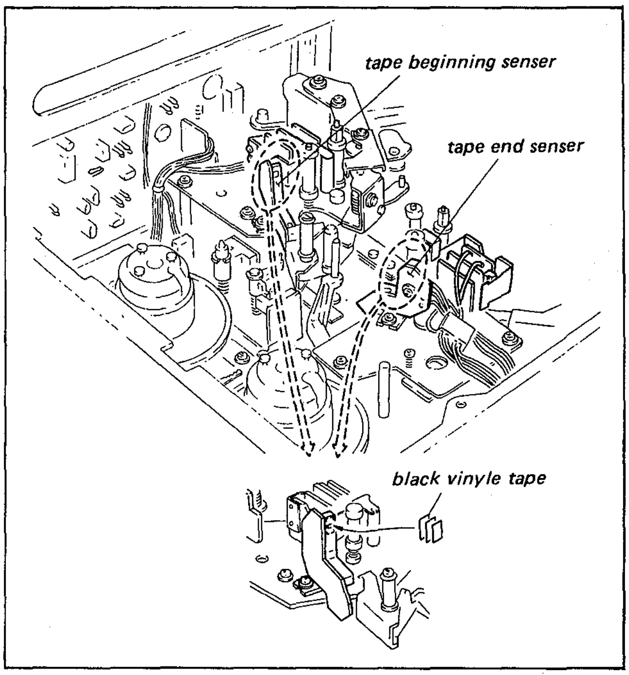
Do not touch Fuse Post at any time, even power is OFF. (Especially Ref. No. F3 and F4 on FU-16 board at power block.)



5-6. MUTING OF TAPE BEGINNING SENSOR AND TAPE END SENSOR

Cut a piece of black vinyl tape into a piece of 1 cm x 1.5 cm long and place it over to each photo-transistors. Light will path through one or two pieces of tape so that three pieces of black vinyl tape should be over lapped.

(CAUTION)
Never forget to remove the black vinyl tape from the two photo-transistors.
If the machine is placed into the F.FWD or REW mode without removing the black vinyl tape, the machine cannot detect the tape beginning or tape end. So the machine cannot operate the AUTO STOP operation. The tape and the machine are put into the dangerous situation.



5-7. FIXTURE

Parts Number	Description	For use
J-6001-820-A	Drum Eccentricity Gauge (3)	Upper drum eccentricity adjustment
J-6001-830-A	Drum Eccentricity Gauge (2)	
J-6001-840-A	Drum Eccentricity Gauge (1)	
J-6001-930-A	Drum Eccentricity Gauge (4)	
J-6002-290-A	Dihedral Adjusting Screw	Video head dihedral adjustment
J-6009-830-A	Flatness Plate	Stationary head and tape guide slantness adjustment
J-6130-010-A	Reel Table Height Check Base Jig	Reel tabel height adjustment
J-6130-020-A	Reel Table Height Check Jig	
J-6150 020-A	Pinch Lever Adjustment Jig	Pinch lever right angle adjustment
J-6150-960-A	Reel Motor Shaft Slantness Check Jig	Reel motor shaft slantness adjustment
Y-2031-001-0	Cleaning Fluid Cleaning	Cleaning
2-034-697-00	Cleaning Piece	
3-702-215-01	Torque Measurement Tape (100 mm dia.)	Measurement of torque
3-702-216-01	Back Tension Adjustment Jig	Back tension adjustment
7-723-902-01	Inspection Mirror (handle)	For clearance check
7-723-902-11	Inspection Mirror (mirror)	
7-732-050-30	Tension Scale (100g full scale)	Measurement of back tension and torque
7-732-050-40	Tension Scale (200g full scale)	
7-662-001-62	Sony Grease, SGL-501	For lubrication
	Alignment Tape	Tracking, audio, video and overall adjustment
9-911-053-00	Thickness Gauge	For clearance check
Standard Products	Head Demagnetizer (HE-4)	Degaussing of heads

SECTION 6
REPLACEMENT OF MAJOR PARTS

6-1. REPLACEMENT OF DRUM ASSEMBLY

Replacement procedure:

(1) Remove the slip-ring brush assembly.

(2) Disconnect the connector of the durm assembly. Remove the three fixing screws, and remove the defective drum.

(3) Install a new drum assembly on the base while turning the drum assembly in the counterclockwise direction viewing from top of the set.

(4) Reconnect the connector.

(5) Install the slip-ring brush assembly.

6-2. REPLACEMENT OF UPPER DRUM ASSEMBLY

The rotary video and erase heads cannot be replaced individually, the whole upper drum assembly must be replaced when any one of these heads fails.

Tool: Drum eccentricity gauge (1)
Drum eccentricity gauge (2)
Drum eccentricity gauge (3)
Drum eccentricity gauge (4)

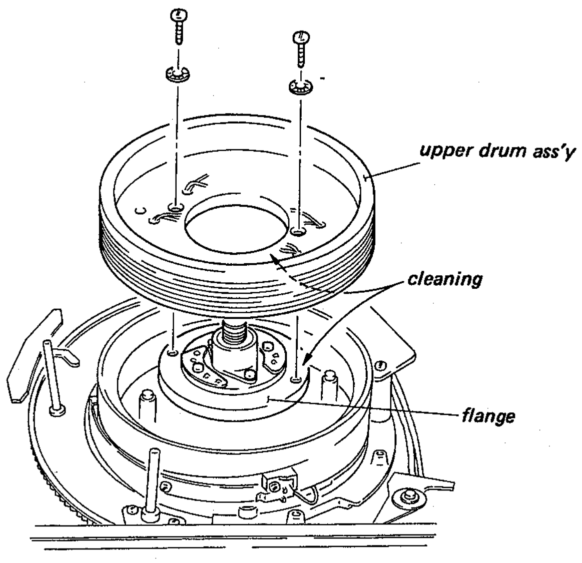
Replacement procedure:

(1) Remove the slip-ring brush assembly.

(2) Unsolder the eight leads of the video and rotary erase heads from the printed circuit board.

(3) Remove the two fixing screws and remove the upper drum assembly from the head drum assembly.

(4) Clean the matching surface of the flange and new upper drum assembly with a cloth moistened with cleaning fluid. (If there is a spacer between drum and flange, it should be left in place, or be re-installed in the same place with the new upper drum assembly.)



(5) Place the upper drum assembly so that the head with white leads is close to the round indentation on the surface of the flange. (The rounded indentation can be seen through the hole in the end of the printed circuit board the white leads are connected to.) Thread the two screws until some resistance is felt, but do not completely tighten.

Adjustment procedure:

(1) Assemble the drum eccentricity gauges (1), (2), (3) and (4) as shown in the figure. Mount the assembled gauges on the machine so that the probe tip is touching a below point about 5mm the top edge of the upper durm.

(2) Turn the upper drum slowly clockwise direction and confirm the pointer deflection of the gauge is within 5 micron during one complete turn of the upper drum. If it meets the required specification, proceed with Step (4). If it is not, perform then continue with remaining steps.

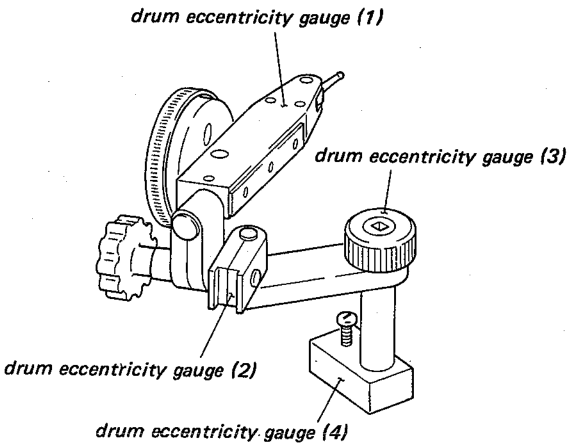
(3) Tap the inside of the upper drum with a nylon hammer or a screwdriver handle or the like so that the gauge deflection remains within 5 micron.

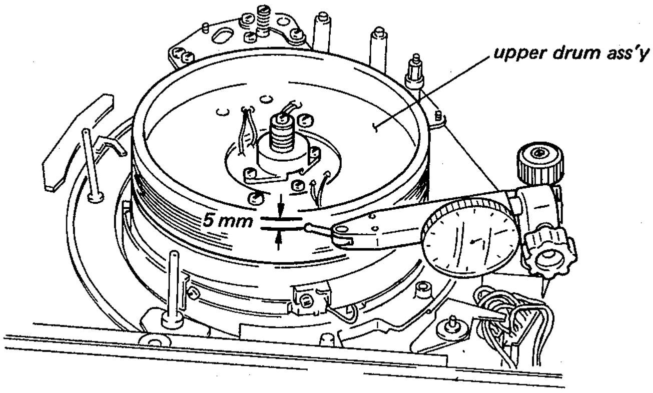
(4) After adjustment, tighten the two screws that are securing the upper drum, alternately and gradually using a tightening torque: 14 to 16kg x cm.

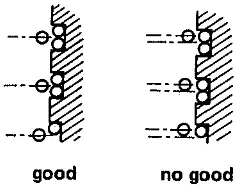
(5) After the screws are tightened, check again that the eccentricity of the upper drum is within 5 micron.

(6) Solder the eight leads from the video and rotary erase heads to the printed circuit board.

(7) Install the slip-ring brush assembly. (The relative position of the slip ring and the brush must be as shown in the figure.)


drum eccentricity gauge (1)
drum eccentricity gauge (3)
drum eccentricity gauge (2)
drum eccentricity gauge (4)





6-3. REPLACEMENT OF TENSION DETECTOR

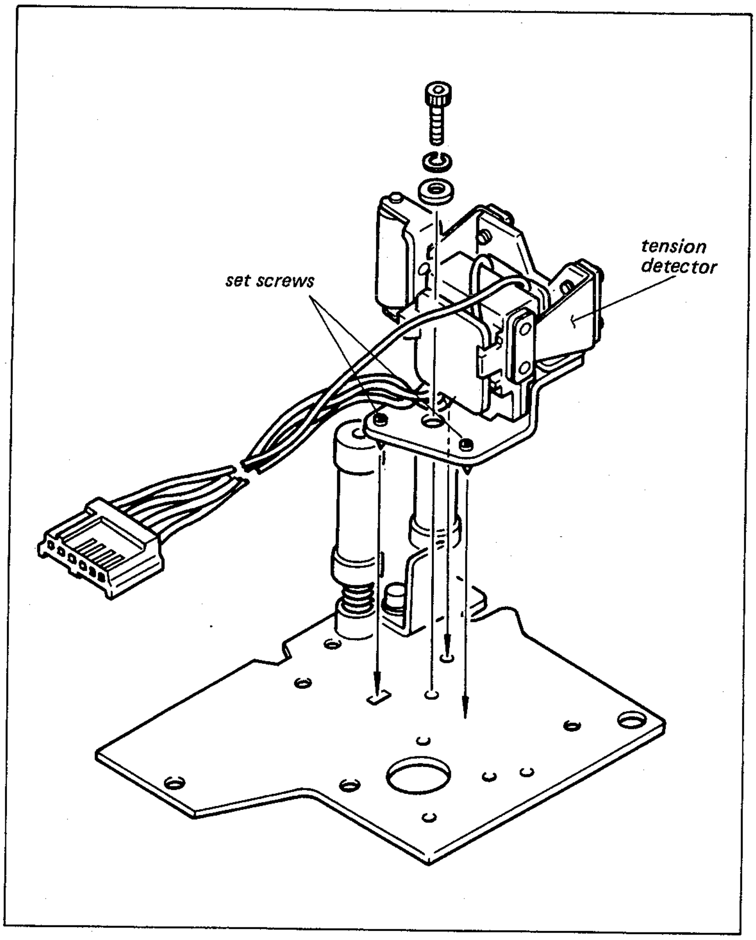
The take-up and supply tension detectors are precisely factory calibrated before shipment. Therefore these component parts cannot be replaced individually, the whole tension detector must be replaced.

Replacement procedure:

(1) Remove the cap screw, and remove the tension detector.

(2) Fit the two set screws on the new tension detector.

(3) Install the new tension detector.



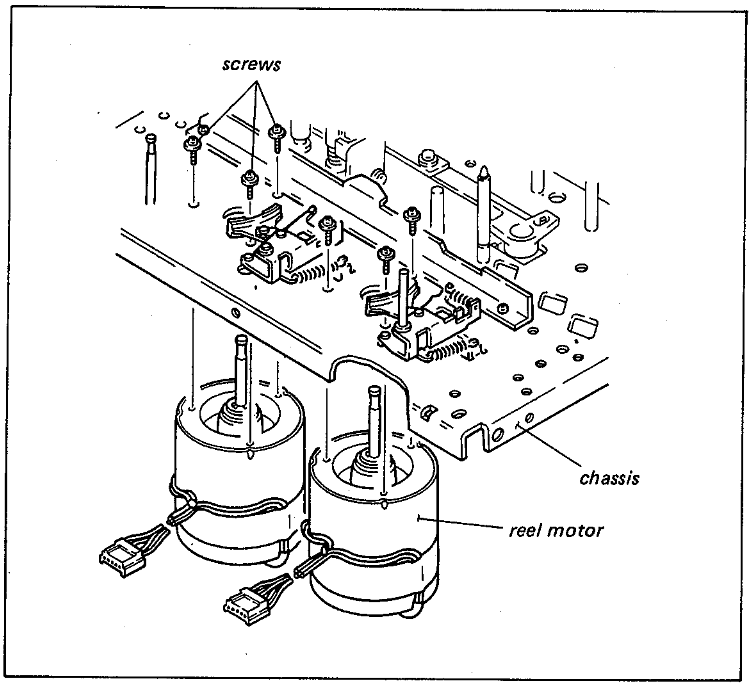
6-4. REPLACEMENT OF MOTOR

6-4-1. Replacement of Reel Motor

Replacement procedure:

(1) Loosen the two set screws on the under side of the reel table. Remove the reel table from the reel shaft.

(2) Remove the three fixing screws and replace the reel motor.



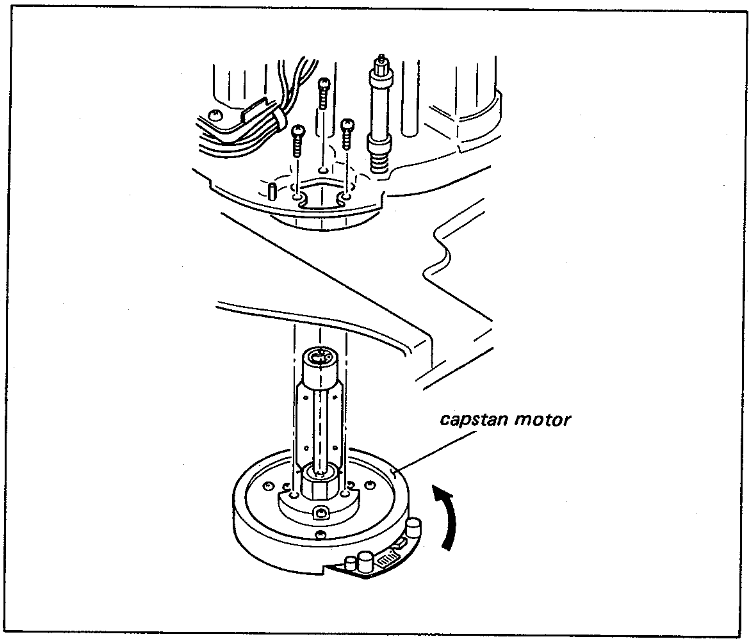
6-4-2. Replacement of Capstan Motor

Replacement procedure:

(1) Remove the three fixing screws, and remove the capstan motor.

(2) Install the new capstan motor.

(3) Tighten the fixing screws while turning the capstan motor counter-clockwise direction.



6-4-3. Replacement of Threading Motor

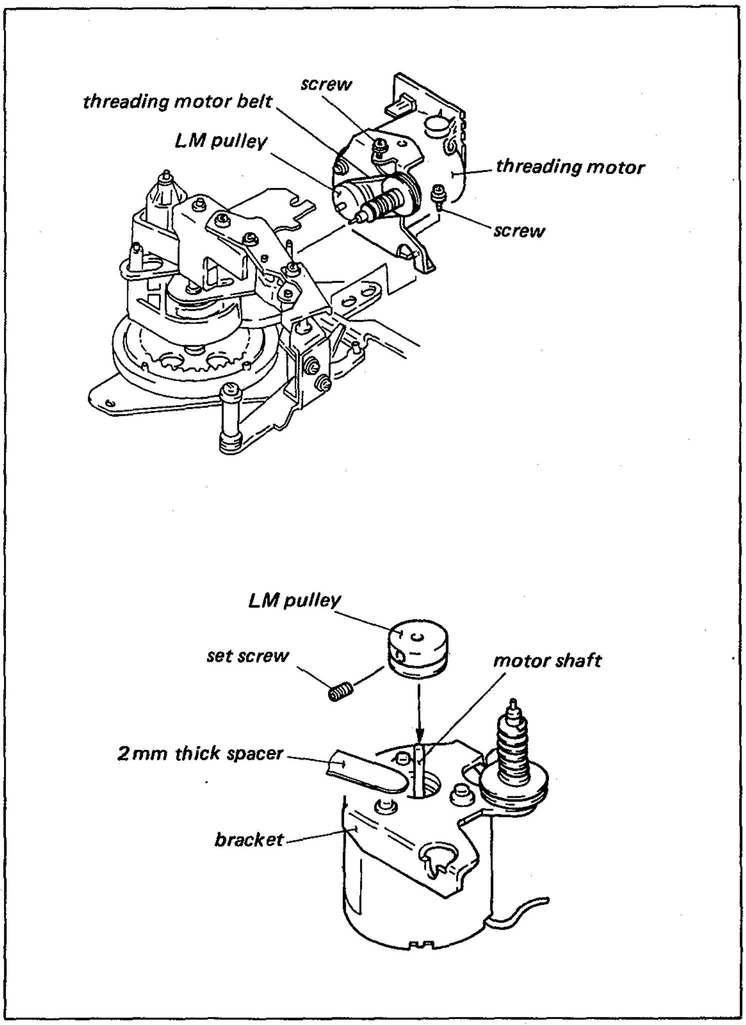
Tool: Allen key (across flat has 1.27mm)
Thickness gauge

Replacement procedure:

(1) Remove the threading motor block from the chassis.

(2) Replace the motor.

(3) Install the LM pulley so that the clearance between the pulley and the bracket is 2mm.


screw
threading motor belt
LM pulley
threading motor
screw
LM pulley
set screw
motor shaft
2mm thick spacer
bracket

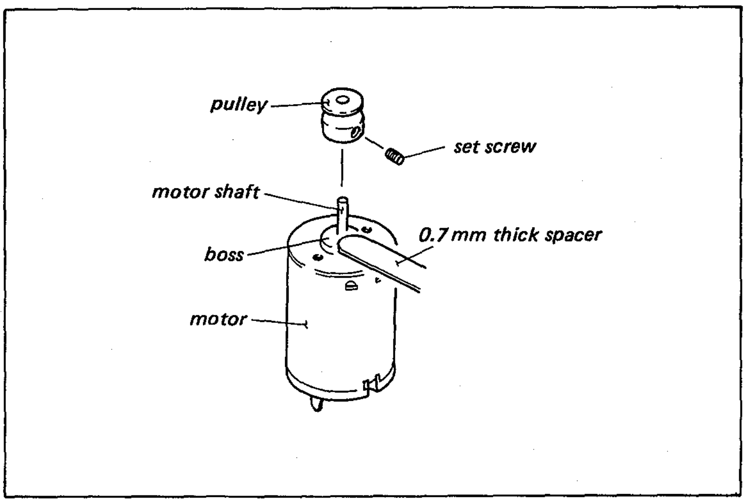
6-4-4. Replacement of Cassette-up Assembly's Motor

Tool: Allen key (across flat has 1.5mm)
Thickness gauge

Replacement procedure:

(1) Replace the cassette-up assembly's motor.

(2) Install the pulley so that it positioned 0.7mm apart from the edge of the motor boss.


pulley
set screw
motor shaft
0.7mm thick spacer
boss
motor

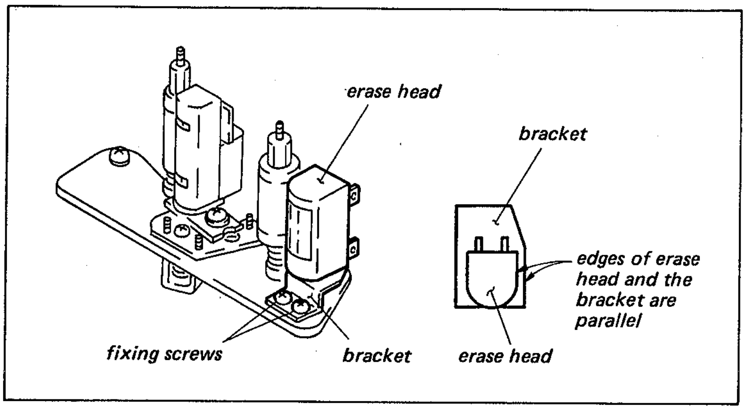
6-5. REPLACEMENT OF THE STATIONARY HEAD

6-5-1. Replacement of Erase Head

Replacement procedure:

(1) Remove the erase head block. Remove the two fixing screws and replace the erase head.

(2) Install the erase head so that the relative position of the erase head and bracket is as shown in the figure.

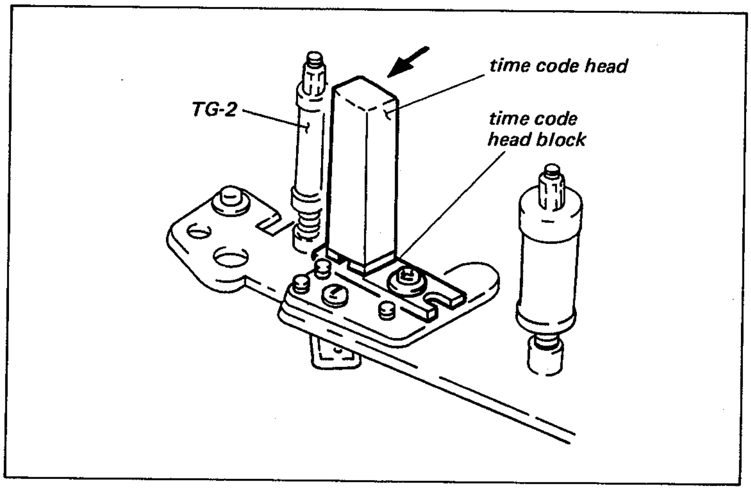

erase head
bracket
edges of erase head and the bracket are parallel
fixing screws
bracket
erase head

6-5-2. Replacement of Time Code Head

Replacement procedure:

(1) Remove the time code head block. Remove the two fixing screws and replace the time code head block.

(2) While tightening the fixing screw push the time code head direction arrowed in the figure.

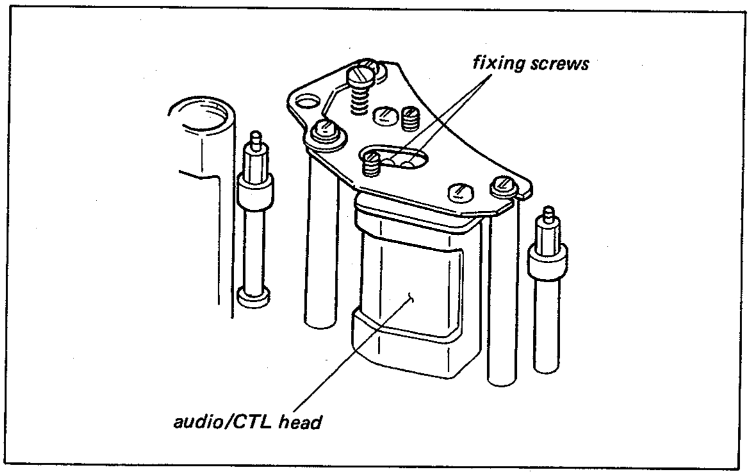

time code head
TG-2
time code head block

6-5-3. Replacement of Audio/CTL Head

Replacement procedure:

(1) Remove the audio/CTL head block from the machine.

(2) Install the audio/CTL head turning in the clockwise direction.


fixing screws
audio/CTL head

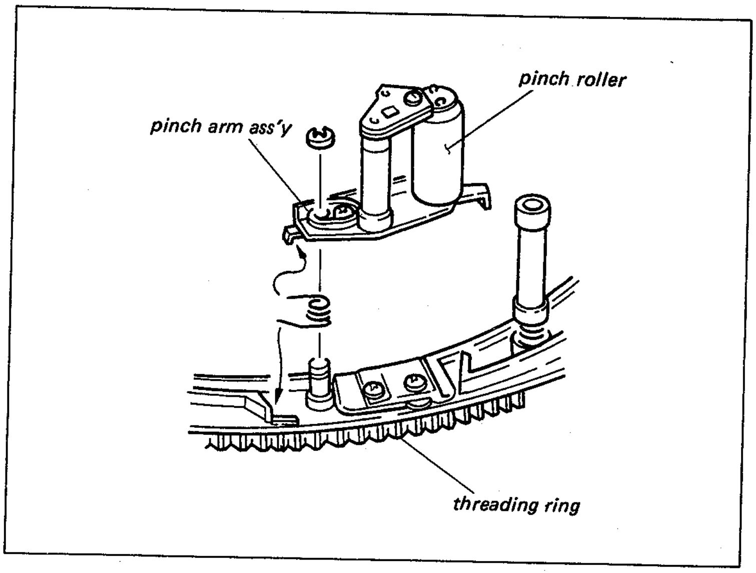
6-6. REPLACEMENT OF PINCH ROLLER

The pinch roller cannot be replaced individually. The whole pinch arm assembly must be replaced.

Replacement procedure:

(1) Remove the pinch arm assy from the threading ring.

(2) Install the new pinch arm assy on the threading ring as shown in the figure.


pinch roller
pinch arm ass'y
threading ring

6-7. REPLACEMENT OF BRAKE BAND

Replacement procedure:

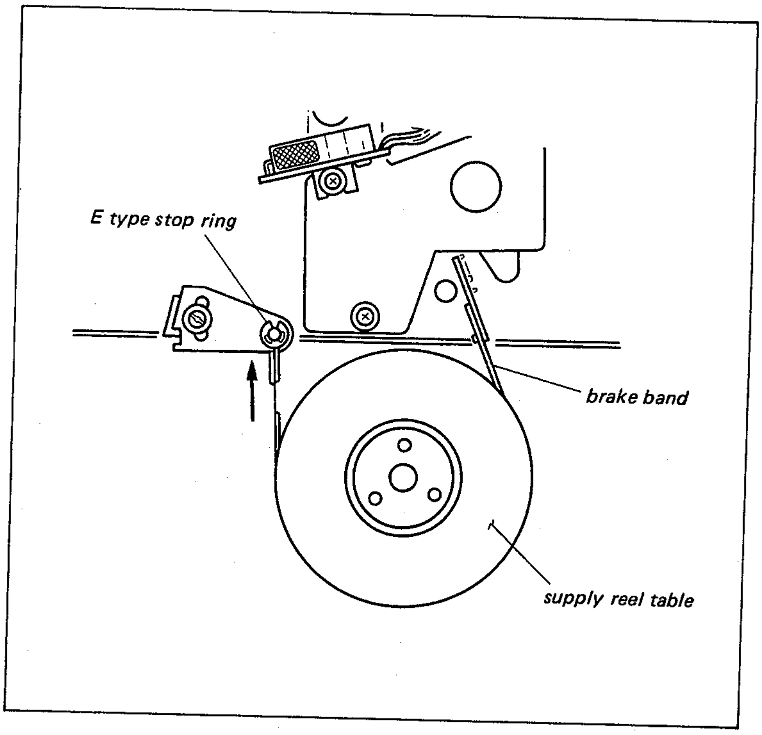
(1) Put the machine into STOP mode.

(2) Turn the power OFF.

(3) Remove the brake band protector.

(4) Remove the E type stop ring. And move the brake band in the direction of the arrow for removal.

(5) Fit the new brake band.


E type stop ring
brake band
supply reel table

6-8. REPLACEMENT OF THE BELT

6-8-1. Replacement of the Threading Motor's Belt

Replacement procedure:

(1) Put the machine into the EJECT completion mode.

(2) Turn the power OFF and remove the MD and YD Board.

(3) Disconnect the connector of the threading motor block.

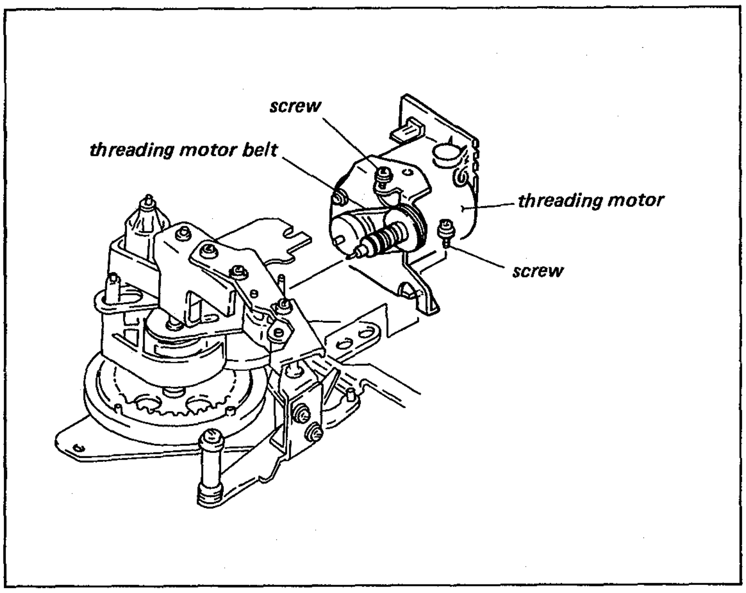
(4) Remove the worm gear cover.

(5) Loosen the two fixing screws of the motor block, and remove the motor block toward the amp chassis.

(6) Replace the belt with a new one.

(7) Assemble the motor block by reversing Steps (6) to (1).

(8) Turn the power ON and insert a cassette tape. Check that the threading and unthreading operations is smooth.



6-9. ADJUSTMENT ITEM TABLE AFTER MAIN PARTS REPLACEMENT

Replacement of Drum Assembly

Slip-ring and Brush Position Adjustment (9-10) → FWD Back Tension Adjustment (8-4) → Pinch Roller Azimuth Adjustment (9-1-5) → Tape Run Adjustment at Threading Guide (1) (9-2-1) → Tape Wrinkle Release Adjustment at Pinch Roller (9-2-2) → Video Tracking Adjustment (9-3) → FF/REV Tape Run Overall Adjustment (9-2-6) → Time Code Head Height Adjustment (9-5-2) → Time Code Head Zenith Adjustment (9-5-3) → Audio Head Adjustment (9-6) → Video Head Dihedral Adjustment (9-8) → Audio/CTL Head Position Adjustment (9-7) → Time Code Head Position Adjustment (9-5-4) → Drum Free Speed Adjustment (11-2) → Drum Lock Phase Adjustment (11-12) → Switching Position Adjustment (11-11) → Picture Splitting Compensator Adjustment (11-13) → DC Balance Adjustment (13-1-3) → RF 7MHz Adjustment (13-1-2) → RF 5.8MHz Turning (13-1-3) → RF Frequency Response Adjustment (13-1-4) → Y-RF balance/Level Adjustment (13-1-5) → Chroma-RF Balance/Level Adjustment (13-1-6) → Record Current Frequency Response Adjustment (13-5-1) → Y Record Current Adjustment (13-5-2) Chroma Record Current Adjustment (13-5-3) → Overall Frequency Response Adjustment (13-7) → Rotary Erase Current Adjustment (14-1)

Replacement of Upper Drum Assembly

Upper Drum Eccentricity Adjustment (6-2) → Slip Ring and Brush Position Adjustment (9-10) → Video Tracking Adjustment (9-3) → FF/REV Tape Run Overall Adjustment (9-2-6) → Time Code Head Height Adjustment (9-5-2) → Time Code Head Zenith Adjustment (9-5-3) → Audio Head Adjustment (9-6) → Video Head Dihedral Adjustment (9-8) → Audio/CTL Head Position Adjustmnent (9-7) → Time Code Head Position Adjustment (9-5-4) → Drum Free Speed Adjustment (11-2) → Drum Lock Phase Adjustment (11-2) → Switching Position Adjustment (11-11) → Picture Splitting Compensator Adjustment (11-13) → DC Balance Adjustment (13-1-1) → RF 7MHz Adjustment (13-1-2) → RF 5.8MHz Turning (13-1-3) → RF Frequency Response Adjustment (13-1-4) → Y-RF Balance/Level Adjustment (13-1-5) → Chroma-RF Balance/Level Adjustment (13-1-6) → Record Current Frequency Response Adjustment (13-5-1) → Y Record Current Adjustment (13-5-2) → Chroma Record Current Adjustment (13-5-3) → Overall Frequency Response Adjustment (13-7) → Rotary Erase Current Adjustment (14-1)

Replacement of Audio/CTL Head

Audio Head Zenith Adjustment (9-6-2) ——→ Audio Head Azimutn Adjustment (9-6-3) ——→ Audio Head Height Adjustment (9-6-1) ——→ Video Tracking Adjustment (9-3) ——→ FWD/REV Tape Run Overall Adjustment (9-2-6) ——→ Audio Head Height Adjustment (9-6-1) ——→ Audio Head Azimuth Adjustment (9-6-3) ——→ Audio Head Phase Adjustment (9-6-4) ——→ Audio/CTL Head Position Adjustment (9-7) ——→ Time Code Head Position Adjustment (9-5-4) ——→ Playback Frequency Response/ Level Adjustment (12-6) ——→ Playback Output Level Adjustment (12-7) ——→ Record Level Adjustment (12-17) ——→ Record Current Frequency Response Adjustment (1) (12-18) ——→ Record Current Frequency Response Adjustment (2) (12-19) ——→ Audio Erase Current Adjustment (1) (12-9) ——→ Audio Erase Current Adjustment (2) (12-10) ——→ Audio Erase Current Adjustment (3) (12-11) ——→ Record Bias Current Adjustment (1) (12-12) ——→ Record Bias Current Adjustment (2) (12-16)

Replacement of Time Code Head

Time Coad Head Zenith Adjustment (9-5-3) ——→ Time Code Head Tape-to-Head Contact Adjustment (9-5-1) ——→ Time Code Head Height Adjustment (9-5-2) ——→ Video Tracking Adjustment (9-3) ——→ FWD/REV Tape Run Oveall Adjustment (9-2-6) ——→ Audio/CTL Head Position Adjustment (9-7) ——→ Time Code Head Position Adjsutment (9-5-4) ——→ Time Code Playback/Output Level Adjustment (14-4) ——→ Time Code Record Current Adjustment (14-5)

Replacement of Erase Head

Erase Head Zenith Adjustment (9-4) ——→ Video Tracking Adjustment (9-3) ——→ FWD/REV Tape Run Overall Adjustment (9-2-6) ——→ Audio/CTL Head Position Adjustment (9-7) ——→ Time Code Head Position Adjustmen (9-5-4)

Replacement of Capstan Motor

Capstan Free Speed Adjustment (11-3) ——→ Pinch Roller Adjustment (9-1) ——→ Tape Run Adjustment at Threading Guide (1) (9-2-1) ——→ Tape Wrinkle Release Adjustment at Pinch Roller (9-2-2) ——→ FWD/REV Tape Run Overall Adjustment (9-2-6) ——→ Video Tracking Adjustment (9-3) ——→ Audio/CTL Head Position Adjsutment (9-7) ——→ Time Code Head Position Adjustment (9-5-4)

Replacement of Pinch Roller

Pincn Roller Self-Alignment Adjustment (9-1-3) ——→ Pinch Roller Zenith Adiustment (9-1-4) ——→ Pinch Roller Azimuth Adjustment (9-1-5) ——→ Pinch Roller Preset Adjustment (9-1-6) ——→ Tape Run Adjustment at Threading Guide (1) (9-2-1) ——→ Tape Wrinkle Release Adjustment at Pinch Roller (9-2-2) ——→ Video Tracking Adjustment (check) (9-3) ——→ FWD/REV Tape Run Overall Adjustment (9-2-6) ——→ Audio/CTL Head Position Adjustment (check) (9-7) ——→ Time Code Head Position Adjsutment (9-5-4)

Replacement of Threading Ring

Threading Ring Rotation Adjustment (7-10-1) ——→ Ring Drive Gear Engagement Adjustment (7-10-2) ——→ Ring Sensor Position Adjustment (7-10-3) ——→ Threading Slider Assembly End Position Adjustment (7-10-5) ——→ Threading Slider EJECT Position Adjustment (7-10-6) ——→ Release Cam Installing Position Adjustment (7-10-7) ——→ Pinch Roller Stopper Position Adjustment (9-1-2) ——→ Pinch Roller Self-Alignment Adjustment (9-1-3) ——→ Pinch Roller Zenith Adjustment (9-1-4) ——→ Pinch Roller Azimuth Adjustment (9-1-5) ——→ Pinch Roller Preset Adjustment (9-1-6) ——→ Tape Run Adjustment at Threading Guide (1) (9-2-1) ——→ Tape Wrinckle Release Adjustment at Pinch Roller (9-2-2) ——→ Tape Run Adjustment at Correction Guide (A) (9-2-3) ——→ Tape Run Adjustment at 6th Guide (9-2-4) ——→ Video Tracking Adjustment (9-3) ——→ FWD/REV Tape Run Overall Adjustment (9-2-6) ——→ Audio/CTL Head Position Adjustment (9-7) ——→ Time Code Head Position Adjsutment (9-5-4)

Replacement of Take-up Reel Table

Reel Table Height Adjustment (7-2) ——→ EM-1 Board Mounting Position Adjustment (7-3) ——→ Brake Torque Adjustment (8-3) ——→ FWD/REV Tape Run Overall Adjustment (9-2-6)

Replacement of Supply Reel Table

Reel Table Height Adjustment (7-2) ——→ EM-1 Board Mounting Position Adjustment (7-3) ——→ Brake Torque Adjustment (8-3) ——→ Supply Tention Regulator Arm FWD Position Adjustment (7-6) ——→ FWD Back Tension Adjustment (8-4) ——→ Video Tracking Adjustment (9-3) ——→ FWD/REV Tape Run Overall Adjustment (9-2-6)

Replacement of Brake Band

Supply Tension Regulator Arm FWD Position Adjustment (7-6) ——→ FWD Back Tension Adjustment (8-4) ——→ FWD/REV Tape Run Overall Adjustment (9-2-6) ——→ Video Tracking Adjustment (check) (9-3) ——→ Audio/CTL Head Position Adjustment (9-7) ——→ Time Code Head Position Adjustment (9-5-4)

Replacement of Take-up Reel Motor

Reel Motor Shaft Slantness Adjustment (7-4) → Reel Table Height Adjustment (7-2) → EM-1 Board Mounting Position Adjustment (7-3) → Take-up Reel Motor Speed Adjustment (11-14) → Take-up Reel Motor Current Sensitive Adjustment (8-7) → Brake Torque Adjustment (8-3) → FWD/REV Tape run Overall Adjustment (9-2-6) → Video Tracking Adjustment (check) (9-3)

Replacement of Supply Reel Motor

Reel Motor Shaft Slantness Adjustment (7-4) → Reel Table Height Adjustment (7-2) → EM-1 Board Mounting Position Adjustment (7-3) → Supply Reel Motor Speed Adjustment (11-15) → Supply Reel Motor Current Sensitive Adjustment (8-8) → Brake Torque Adjustment (8-3) → Supply Tension Regulator Arm FWD Position Adjustment (7-6) → FWD Back Tension Adjustment (8-4) → FWD/REV Tape Run Overall Adjustment (9-2-6) → Video Tracking Adjustment (check) (9-3) → Audio/CTL Head Position Adjustment (9-7) → Time Code Head Position Adjustment (9-5-4)

Replacement of Tension Detector

Tension Detector Adjustment (8-5)

SECTION 7

LINK AND DRIVE SYSTEM ALIGNMENT

PREPARATION

When adjustments in this section are attempt, the following preparations will be necessary.

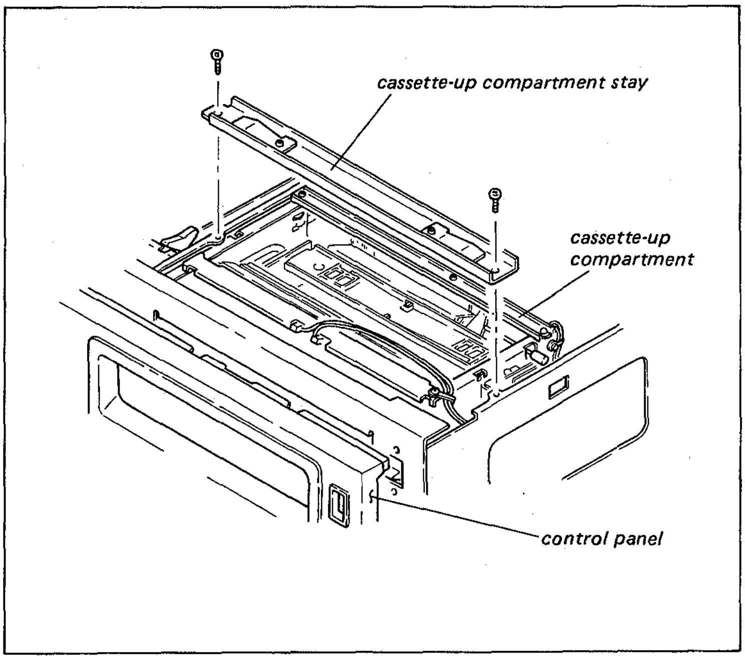
(1) Removal of Cassette-up Compartment

Remove the upper panel and both side panels.

Loosen the right and left side fixing screws of the control panel.

Remove the cassette-up compartment stay.

Disconnect the connector of the cassette-up compartment and lift the cassette-up compartment out of the machine.



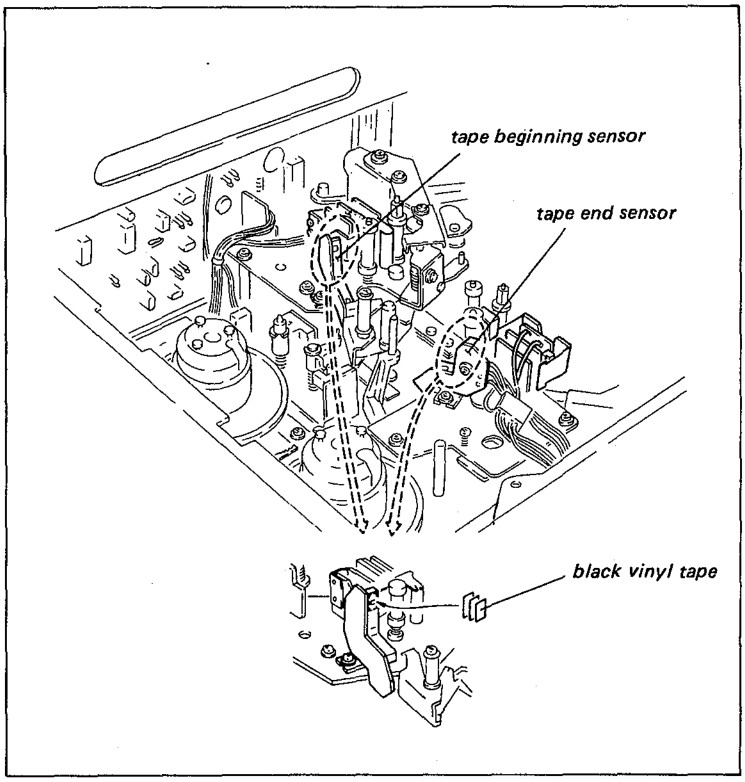
(2) Muting the Tape Beginning Sensor and Tape End Sensor

There are two sensors, one to detect the tape beginning and the other to detect the tape end and to operate AUTO STOP. They are located near the supply and take-up reel tables. When the machine is operated without inserting the cassette-tape, it is necessary to mute this function.

Cut a piece of black vinyl tape into pieces 1cm x 1.5cm and place them over each photo-transistor. Lignt will pass through one or two pieces of tape so three pieces should be over-lapped.

(CAUTION)

Never forget to remove the tape from the two photo-transistors. If the machine is placed into F.FWD or REW mode without removing the tape, the machine cannot detect the tape beginning or tape end. Therefore, the machine cannot operate the AUTO STOP function, and the tape and the machine may be damaged.



(3) Use of Extender Board

Be sure to turn off the power before inserting of removing a printed circuit board.

Do not touch the connector of the printed circuit board.

(4) Muting the TAPE PROTECTION Signal

When the machine is put into PLAY, FF or REW mode without inserting a cassette tape, it is necessary to mute the TAPE PROTECTION signal. This can be done in the following manner.

.Remove the RS-4 board.

.Insert the extension board into this position and insert the RS-4 board into the end of the extension board.

Short between TP512 and TP514/RS-4 with a short clip lead.

(5) Muting the THREADING MOTOR DISABLE Signal

It is necessary to stop the THREADING MOTOR DISABLE signal so that the machine can be put into threading or unthreading mode without inserting a cassette tape.

These operations are as follows.

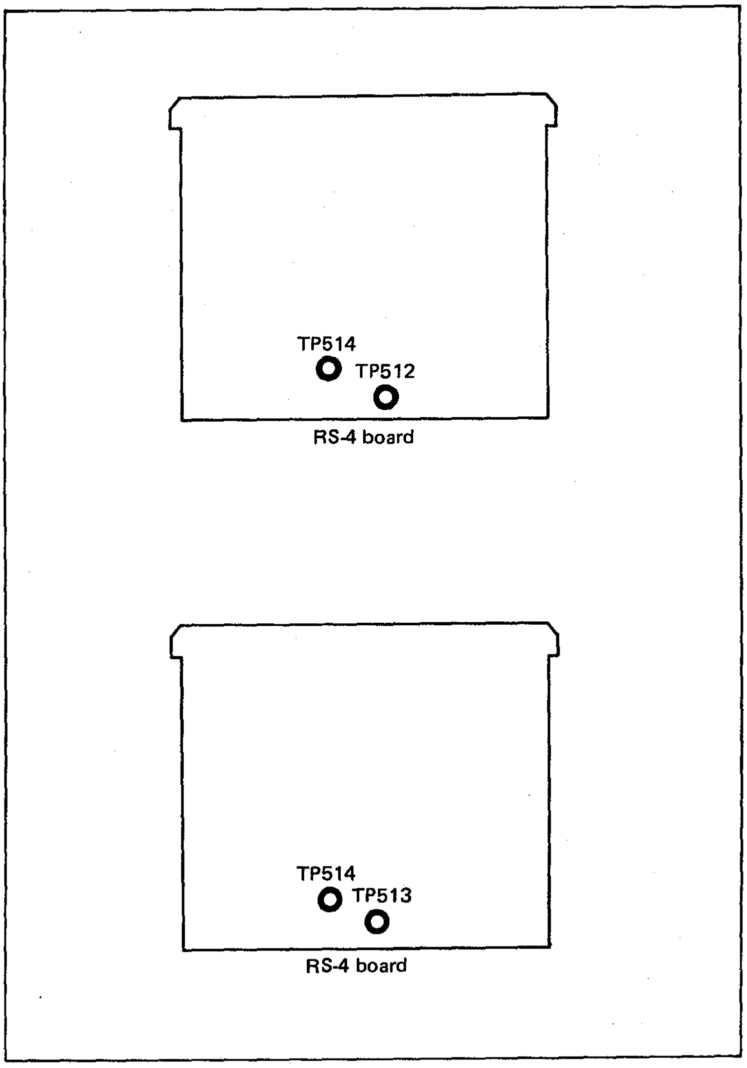
Remove the RS-4 board from the machine.

Insert the extension board into this position and insert the RS-4 board to the end of the extension board.

Short between TP513 and TP514/RS-4 with short clip lead.

(6) Cassette Insertion during Alignment

A cassette should not be inserted into the machine during alignment except where the procedure specifically requires this.



(7) How to put the Machine into Certain Modes without Installing a Cassette Tape

.EJECT Completion Mode.

The state when the 5th guide, 6th guide and the supply tension regulator arm return to the EJECT position completely. The machine is put into the mode as mentioned above to press the EJECT button.

.STOP Mode

The state when the threading ring turns clockwise as far as it will go and the pinch roller is positioned in front of the capstan shaft.

Turn on the power after muting the tape beginning and end sensors, and install the RS-4 board in the machine on an extender board.

One or two seconds later, start the threading operation by muting the threading motor disable signal and the machine will enter STOP mode.

.PLAY Mode

Mute the TAPE PROTECTION signal and THREADING DISABLE signal.

Put the machine into STOP mode as mentioned above and press the PLAY button.

Grasp the supply and take-up reel tables by hand. The machine will enter PLAY mode automatically.

7-1. CASSETTE RETAINER HEIGHT ADJUSTMENT

Tool: Reel table height check base jig
Thickness gauge

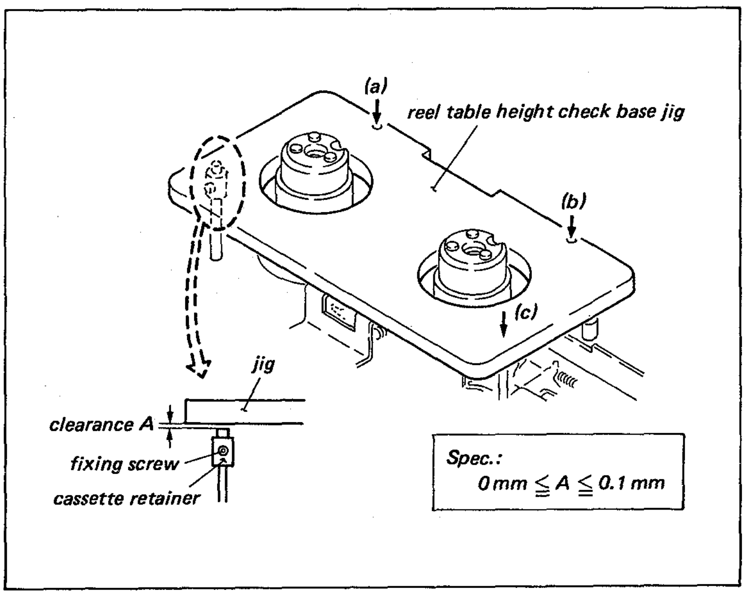
Mode: STOP

Check procedure:

(1) Check that the clearance between the base jig and the cassette retainer meets the required specification while lightly pushing the reel table height check base jig downward at the points marked (a), (b) and (c).

Adjustment procedure:

(1) Adjust the position of the cassette retainer to meet the required specification.


(a)
reel table height check base jig
(b)
(c)
jig
clearance A
fixing screw
cassette retainer
Spec.:
0 mm ≦ A ≦ 0.1 mm

7-2. REEL TABLE HEIGHT ADJUSTMENT

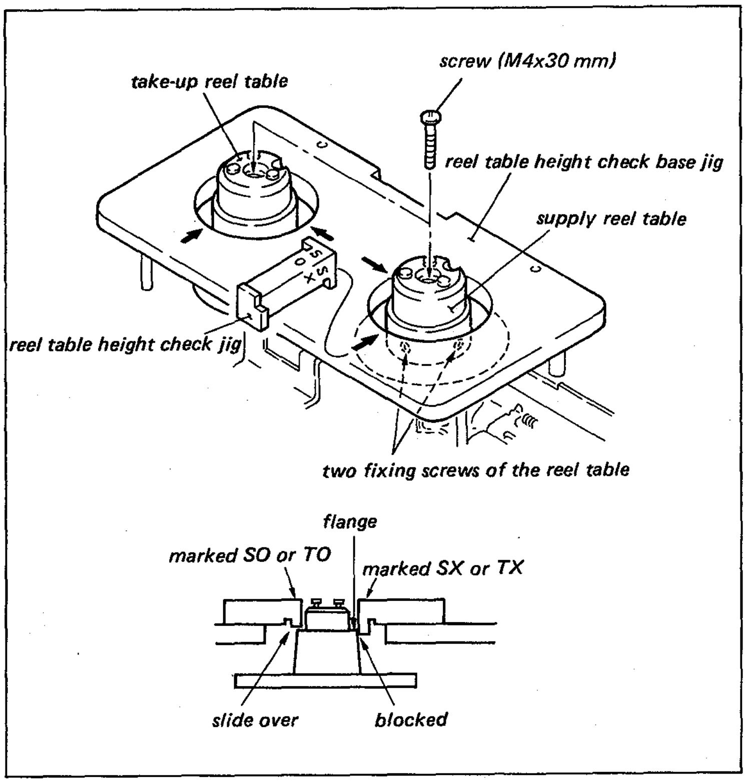
Since the reel table height from the chassis functions as the reference height in the entire tape thread and run system, it is important that the reel table height adjustment should be performed very accurately.

Tool: Reel table height check base jig
Reel table height check jig
Screw (M4 x 30mm)
Allen key (across flat has 1.5mm)

Mode: Power off mode

Check procedure:

(1) Check that the probes of the reel table height check jig marked "SO" and "TO" can slide over the reel table leaving a space between the jig and the reel table, while the probes marked "SX" and "TX" are blocked, and cannot slide over reel table.
- Use the "SO" and "SX" probes for the supply reel table.
- Use the "TO" and "TX" probes for the take-up reel table.


take-up reel table
screw (M4x30 mm)
reel table height check base jig
supply reel table
reel table height check jig
two fixing screws of the reel table
flange
marked SO or TO
marked SX or TX
slide over
blocked

Adjustment procedure:

(1) Thread the screw (M4 x 30mm) at the center of the reel table as far as it will go.

(2) Loosen the two fixing screws of the reel table.

(3) Turn the (M4 x 30mm) screw to meet the required specification. When raising the reel table, press it lightly while turning the screw counterclockwise.

(4) After adjusting, tighten the screws at the side of the reel table, remove the M4 x 30mm screw and check the height again.

7-3. EM-1 BOARD MOUNTING POSITION ADJUSTMENT

Tool: Thickness gauge

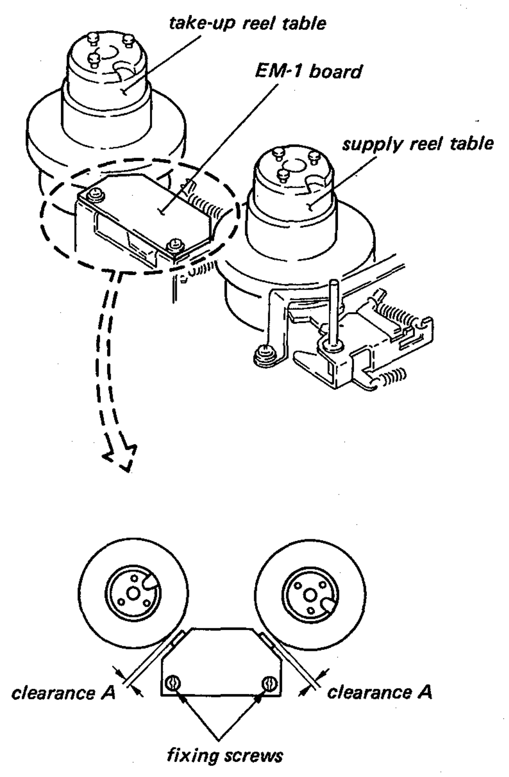
Mode: STOP

Check procedure:

(1) Check that the clearance meets the required specification.

Adjustment procedure:

(1) Adjust the EM-1 board mounting position.


take-up reel table
EM-1 board
supply reel table
clearance A
clearance A
fixing screws

Spec.:
$0.2\,mm \leqq A \leqq 0.4\,mm$

7-4. REEL MOTOR SHAFT SLANTNESS ADJUSTMENT

This adjustment is required only when the reel motor is replaced or removed.

Tool: Reel table height check base jig
Reel motor shaft slantness check jig

Mode: EJECT completion

Preparation:

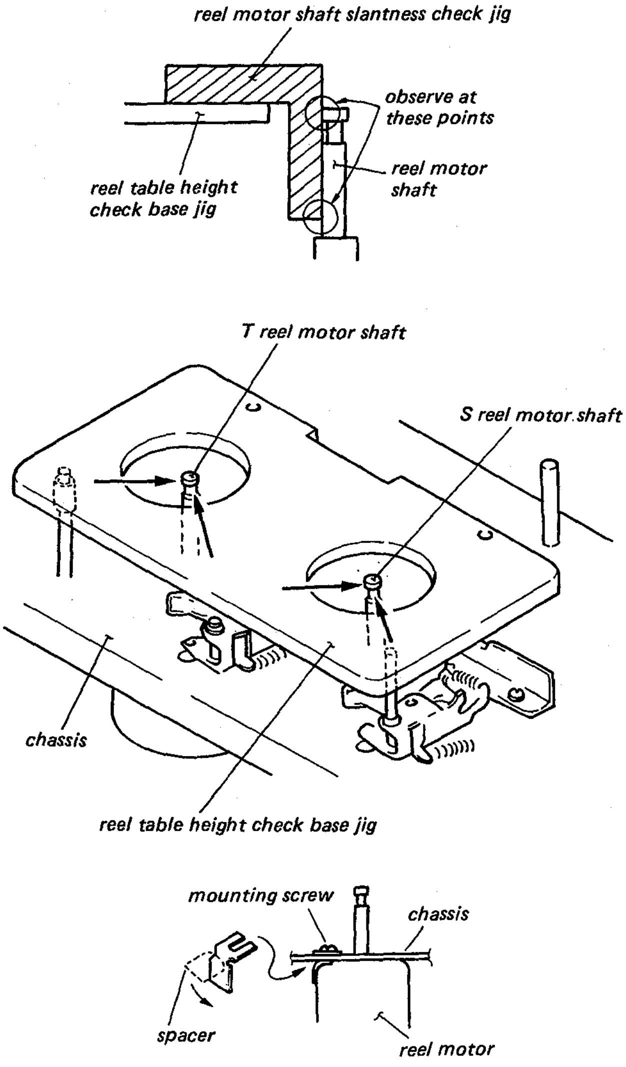
(1) Loosen the two screws at the side of the reel table and remove the reel table.

Check procedure:

(1) Check that there is little visible clearance between the jig and the reel motor shaft at the top and bottom of the shaft when the reel motor shaft slantness check jig is set against the reel motor shaft as shown in the figure.

Adjustment procedure:

(1) Loosen the three fixing screws. Insert the reel motor spacer between the reel motor and the chassis to meet the required specification.


reel motor shaft slantness check jig
observe at these points
reel motor shaft
reel table height check base jig
T reel motor shaft
S reel motor shaft
chassis
reel table height check base jig
mounting screw
chassis
spacer
reel motor

reel motor spacer
0.02 mm thick : 3-651-334-01
0.05 mm thick : 3-651-334-11
0.1 mm thick : 3-651-334-21

7-5. SUPPLY TENSION REGULATOR ARM FF POSITION ADJUSTMENT

Tool: Extension board

Mode: STOP

Preparation:

(1) Mute the tape beginning and tape end sensors.

(2) Mute the TAPE PROTECTION and THREADING MOTOR DISABLE signals.

(3) Turn the power on and put the machine into STOP mode. Turn the power off.

Check procedure:

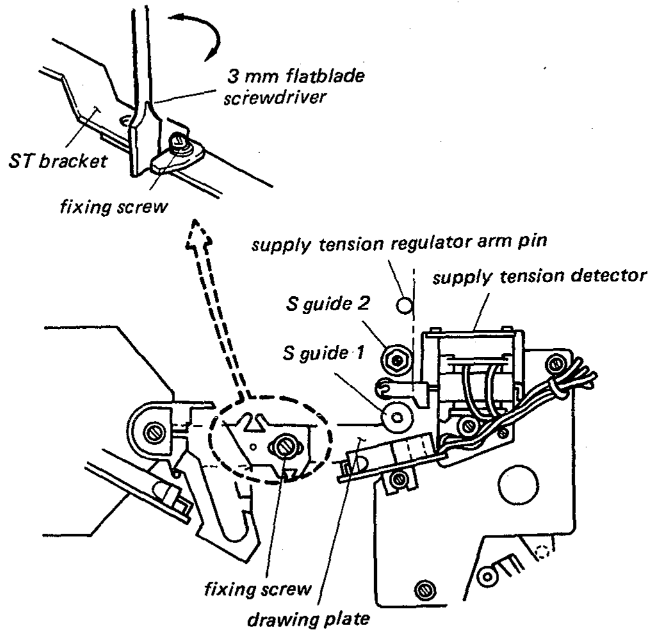
(1) Check that the relative position of the S tension regulator arm pin and the S guide (2) meets the required specificaiton.

Adjustment procedure:

(1) Loosen the fixing screw of the ST bracket about 1/2 turn.

(2) Insert a flatblade 3mm screwdriver into a notch, and move the ST bracket by turning the screwdriver slowly to meet the required specificaion.

(3) Tighten the screw while pressing the ST bracket against the drum.


3 mm flatblade screwdriver
ST bracket
fixing screw
supply tension regulator arm pin
supply tension detector
S guide 2
S guide 1
fixing screw
drawing plate

Spec.:
The outer surface of the supply tension regulator arm pin is positioned on the extended line of S guide 2.
(OUTER SURFACE OF UPPER FLANGE)

7-6. SUPPLY TENSION REGULATOR ARM FWD POSITION ADJUSTMENT

Tool: KCS-20 cassette tape

Check procedure:

(1) While playing back the beginning of a KCS-20 cassette tape, check that the position of the supply tension regulator arm pin and the supply tension detector meets the specification given in the figure. If not, perform the following adjustment.

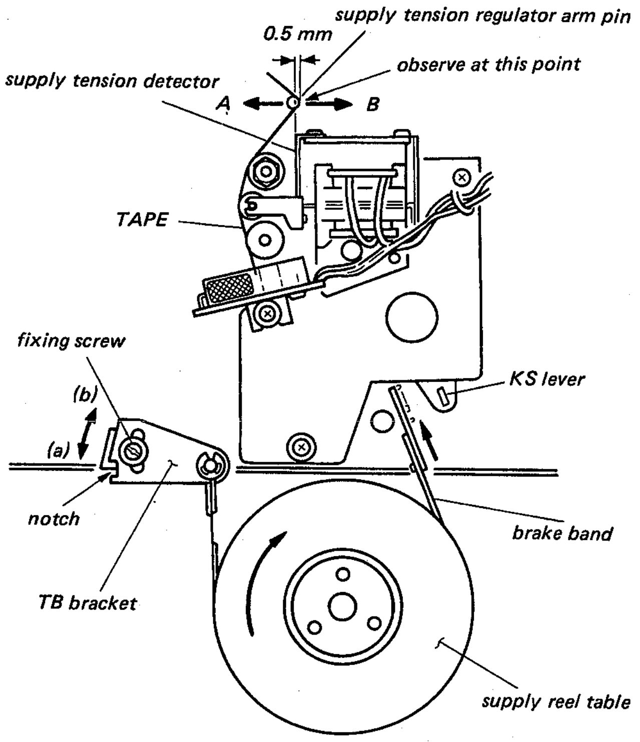
Adjustment procedure:

(1) Remove a KCS-20 cassette tape.

(2) Loosen the fixing screw about 1/4 turn.

(3) Insert a 3mm flatblade screwdriver into the notch in the TB bracket. Adjust the position of the bracket so that the position of the supply tension regulator arm pin meets the specification. Moving the bracket in direction (a), moves the regulator arm pin in direction (A), and moving the bracket in direction (b), moves the pin in direction (B).

(4) Perform the FWD Back Tension Adjustment.



supply tension regulator arm pin
0.5 mm
observe at this point
supply tension detector
A
B
TAPE
fixing screw
KS lever
(b)
(a)
notch
brake band
TB bracket
supply reel table

Spec.:
The center of the supply tension regulator arm pin is positioned between an imaginary line extending from the leaf spring of the tension detector, and a space 0.5 mm to the right of that line.

7-7. CASSETTE-UP COMPARTMENT ADJUSTMENT

7-7-1. IN Switch Position Adjustment

Tool: KCA-60 cassette tape
Thickness gauge
Voltmeter

Preparation:

(1) Connect the connector CN19 of the harness for cassette-up compartment and the terminal on the CC-9 board with the jumper leads.

connector of harness	terminal on CC-9 board
Pin 4 (5V) ←	→ Pin 4/CN1
Pin 5 or 2 (GND) ←	→ Pin 5 or 2/CN1

(2) Turn on the power.

Check procedure:

(1) Connect a voltmeter to terminal 5 or 2 on the CC-9 board.

(2) Insert a KCA-60 cassette tape slowly.

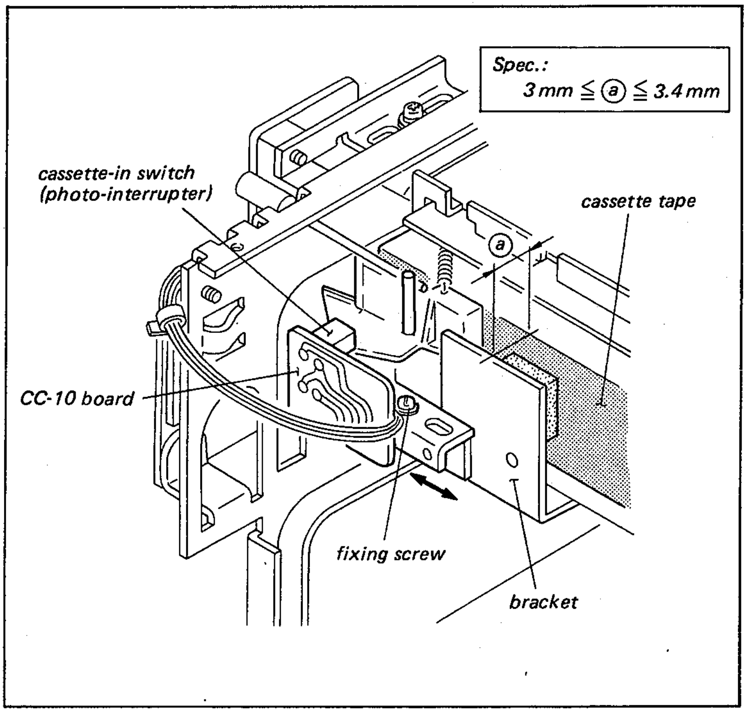
(3) Check that the clearance between the front side of the cassette tape and the bracket of cassette-up compartment meets the required specification when terminal 2 goes high (about 5V).

Adjustment procedure:

(1) Adjust the position of the cassette-in switch in the direction of the arrow to meet the required specification.

.Adjusting procedure;

Insert a 3.3mm thickness gauge between the casette and the bracket. Adjust the position of the cassette-in switch so that terminal 5 or 2 goes high.



7-7-2. DOWN Switch Position Adjustment

Tool: Voltmeter

Preparation:

(1) Connect the connector of the harness for the cassette-up compartment and the terminal on CC-9 board with the jumper leads.

connector of harness	terminal on CC-9 board
Pin 4 (5V) ←→	Pin 4/CN1
Pin 5 or 2 (GND) ←→	Pin 5 or 2/CN1

(2) Turn on the power.

Check procedure:

(1) Connect a voltmeter to terminal 5 or 2 on the CC-9 board.

(2) Turn the white colored gear on the right side of the cassette-up compartment in a clockwise direction.

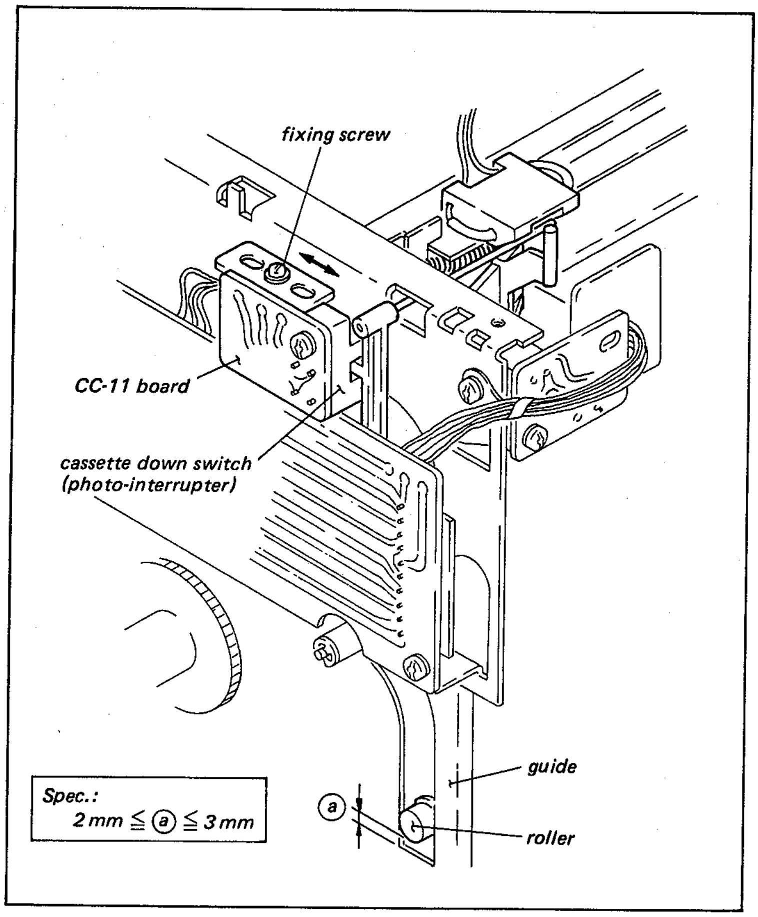
(3) When the voltmeter reads a high level (approx. 5V), check that the clearance between the roller and the guide meets the required specification.

Adjustment procedure:

(1) Adjust the position of the cassette-down switch in the direction of the arrow to meet the required specification.

.Adjusting procedure;

Turn the gear on the right side so that the clearance between the roller and the guide is 2.2mm. Adjust the position of the cassette-down switch so that terminal 5 or 2 goes high.



7-8. SKEW SOLENOID MOUNTING POSITION ADJUSTMENT

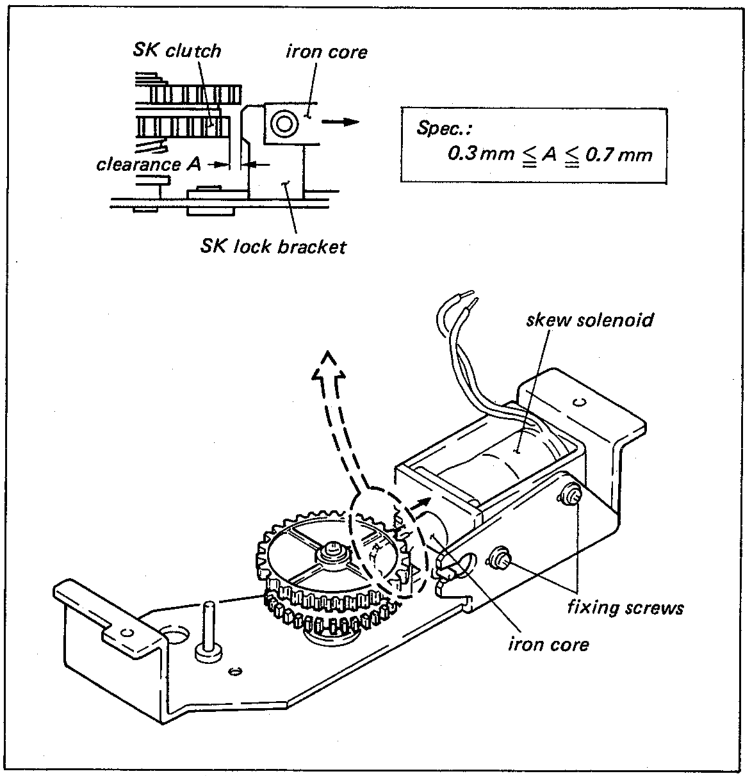
Check procedure:

(1) Push the iron core into the fully energized position as far as it will go.

(2) Check that the clearance between the white colored SK clutch and SK lock bracket meets the required specification as visual.

Adjustment procedure:

(1) Adjust the mounting position of the skew solenoid to meet the required specification.


SK clutch
iron core
clearance A
SK lock bracket
skew solenoid
fixing screws
iron core

Spec.:
0.3 mm ≦ A ≦ 0.7 mm

7-9. SUPPLY TENSION SOLENOID MOUNTING POSITION ADJUSTMENT

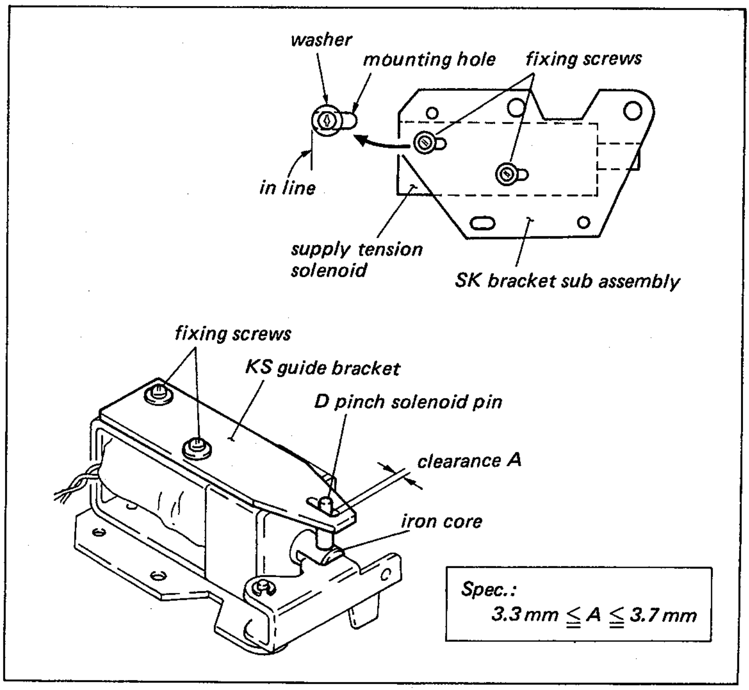
Remove the supply tension solenoid from the machine for this adjustment.

Tool: Thickness gauge

Adjustment procedure:

(1) Attach the supply tension solenoid to the KS bracket sub assembly so that it meets the relationship between the washer and the bracket as shown in the figure.

(2) Push the iron core into the energized position, and attach the KS guide bracket so that clearance (A) between KS guide bracket and D pinch solenoid pin meets the specificaiton.

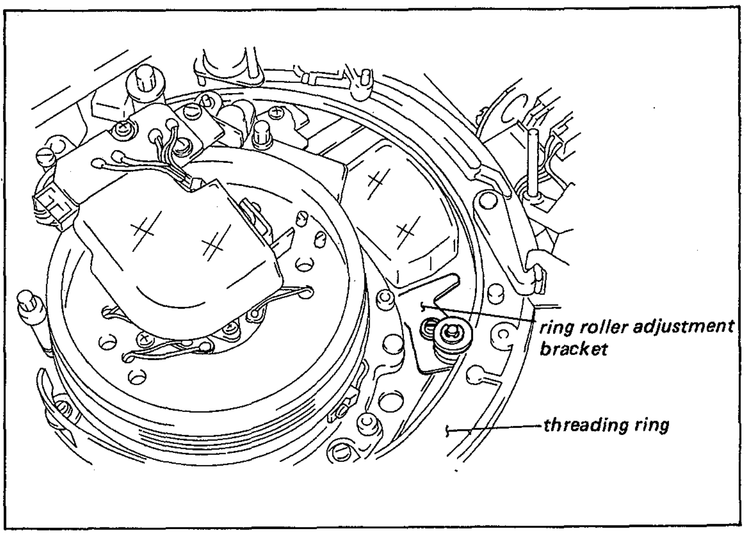

washer
mounting hole
fixing screws
in line
supply tension solenoid
SK bracket sub assembly
fixing screws
KS guide bracket
D pinch solenoid pin
clearance A
iron core

Spec.:
3.3 mm ≦ A ≦ 3.7 mm

7-10. THREADING SYSTEM ADJUSTMENT

7-10-1. Threading Ring Rotation Adjustment

This adjustment is required only when the threading ring is replaced or removed. It is not normally necessary to perform this adjustment.



Adjustment procedure:

(1) Loosen the fixing screw of the ring sensor.

(2) Disengage the ring drive gear from the threading ring.

(3) Remove the protector (R) above the ring roller adjustment bracket.

(4) Adjust the position of the ring roller adjustment bracket to meet the required specification.

.Adjusting procedure;

Insert a 0.3mm thick piece of paper between the threding ring and the ring roller. The paper of this maintenance manual is about 0.1mm thick.

(5) Check that the rotation of the threading ring is smooth when it rotates in both clockwise and counterclockwise directions. Perform this check several times by rotating the threading ring by hand. (If rotation becomes difficult in any position, perform procedure (4) in that position.)

(6) After this adjustment, perform Sec. 7-10-2 Ring Drive Gear Engagement Adjustment and Sec. 7-10-3 Ring Sensor Position Adjustment.

7-10-2. Ring Drive Gear Engagement Adjustment

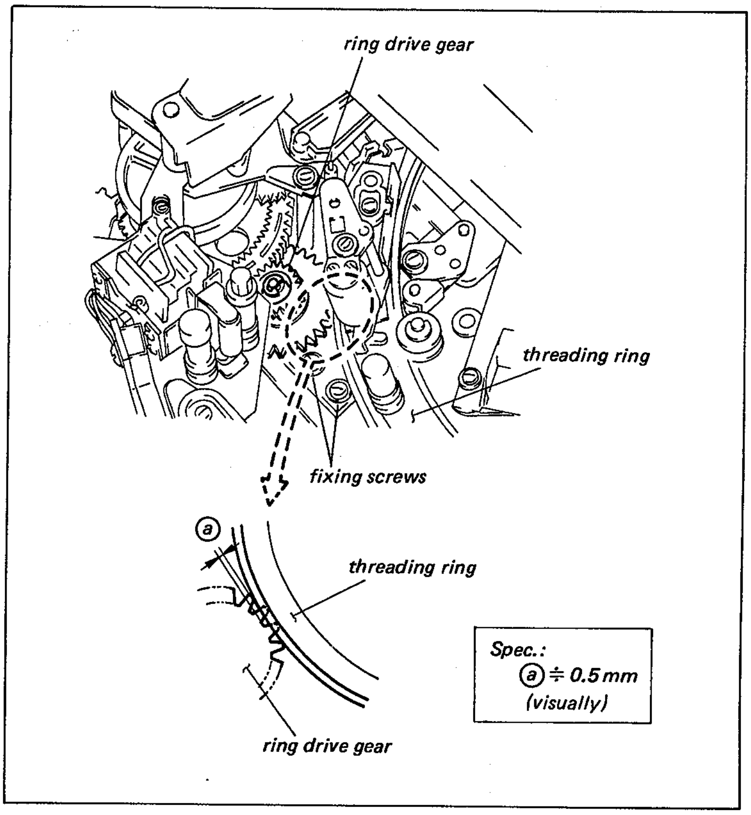
Mode: Engage the 5th guide in the V guide to turn the threading motor pulley by hand.

Adjustment procedure:

(1) Adjust the ring drive gear position so that the relative position of the ring drive gear and the threading ring meets the required specification.

(2) Repeat the threading/unthreading operation two or three times and check that rotation is smooth.

(3) After adjustment, perform Sec. 7-10-3 Ring Sensor Position Adjustment.

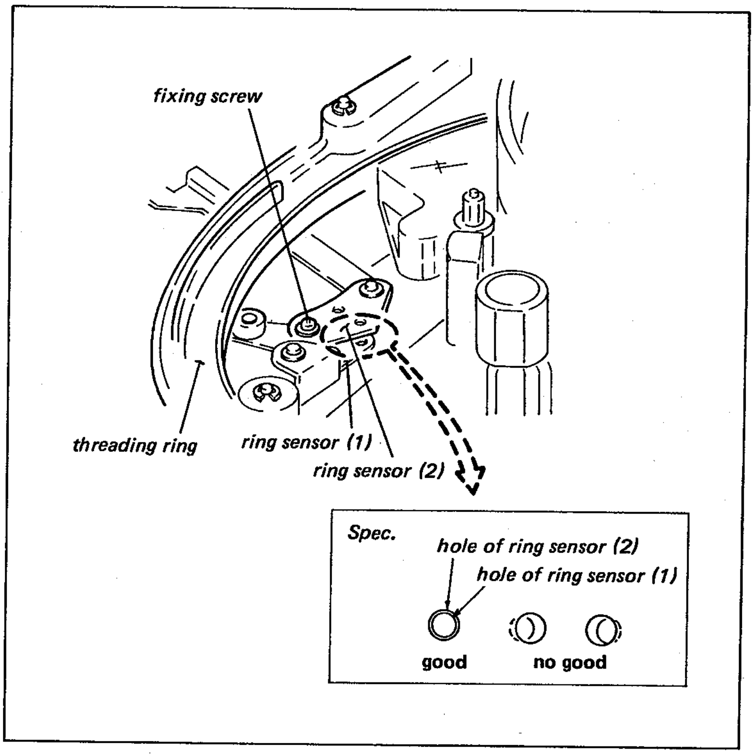

ring drive gear
threading ring
fixing screws
ⓐ
threading ring
Spec.:
ⓐ÷0.5mm
(visually)
ring drive gear

7-10-3. Ring Sensor Position Adjustment

Mode: EJECT completion

Adjustment procedure:

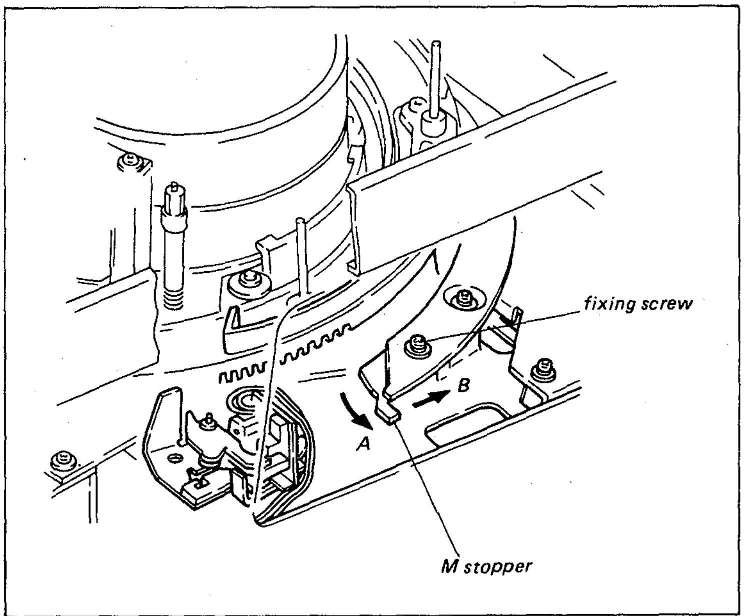
(1) Remove the fixing screw and adjust the ring sensors (1) and (2) so that the hole in each sensor is aligned as per specification.


fixing screw
threading ring
ring sensor (1)
ring sensor (2)
Spec.
hole of ring sensor (2)
hole of ring sensor (1)
good
no good

7-10-4. M Stopper Mounting Position Adjustment

Adjustment procedure:

(1) Loosen the two fixing screws, push the M stopper as far as it will go in directions A and B, then retighten the screws.


fixing screw
B
A
M stopper

7-10-5. Secondary Threading Arm Holder End Position Adjustment

Check procedure:

(1) Insert a KCA-60 cassette tape. (Use the end section of the tape.)

(2) Turn off the power when the pinch roller comes in front of the audio/CTL head.

(3) Check that the clearance B meets the required specification (1) as shown in the figure 2. If not, perform the following adjustment.

(4) Turn on power. Put the machine into the STOP mode.

(5) Check that the positional relationship between the roller and the M stopper meets the required specificaiton (2) as shown in the figure 3.

(6) Repeat the EJECT and STOP modes two or three times. Check as procedure (5).

Adjustment procedure:

(1) Adjust the position of the secondary threading arm holder to meet the required specification (1).

(2) After adjustment, check as procedures (4) to (6) of check procedure.

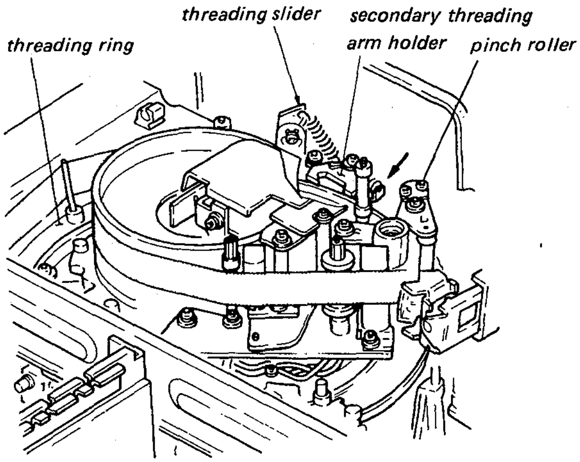
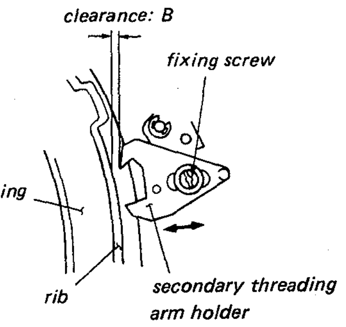

threading slider
secondary threading arm holder
threading ring
pinch roller

Fig-1

< adjusting procedure >


clearance: B
fixing screw
threading ring
rib
secondary threading arm holder

Spec (1):
0.5 mm ≦ B ≦ 1 mm

Fig-2

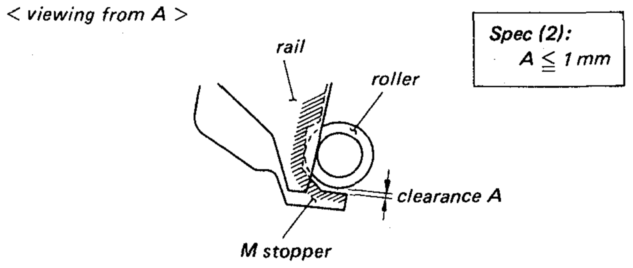

< viewing from A >
rail
roller
Spec (2):
A ≦ 1 mm
clearance A
M stopper

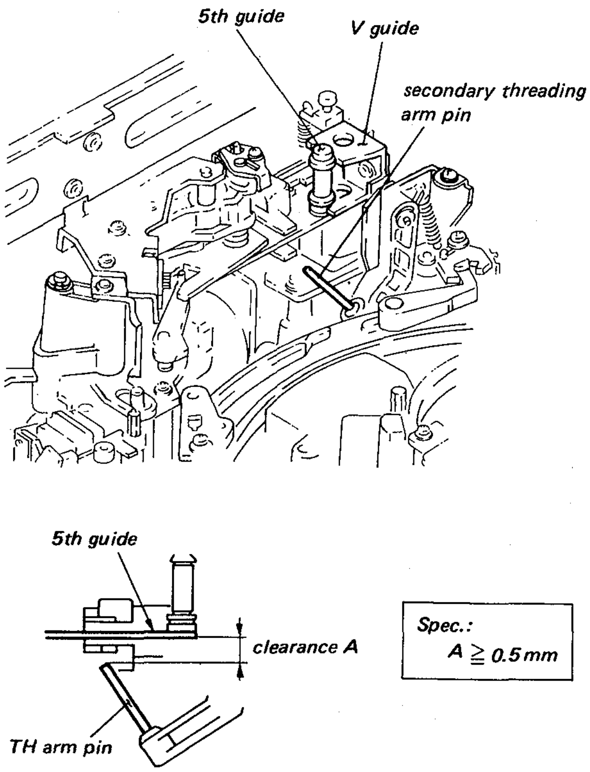
Fig-3

7-10-6. Threading Slider EJECT Position Adjustment

Mode: EJECT completion

Check procedure:

(1) Check that the clearance between the 5th guide and the secondary threading arm pin meets the required specificaiton.


5th guide
V guide
secondary threading arm pin
5th guide
clearance A
TH arm pin
Spec.:
A ≧ 0.5 mm

7-10-7. Release Cam Installing Position Adjustment

Check procedure:

(1) Insert a KCA-60 cassette tape (use the beginning section of the tape) and put the machine into STOP mode.

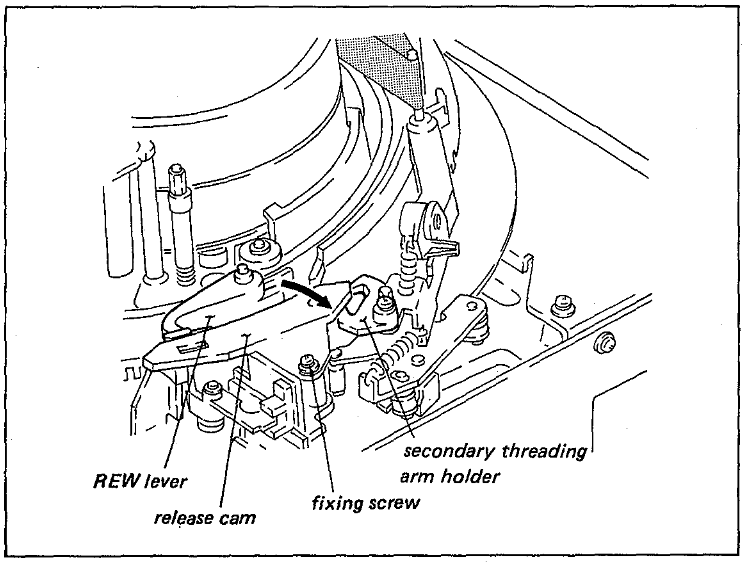
(2) Turn off the power and then on again and put the machine into unthreading mode.

(3) Check that the REW lever locks to the secondary threading arm holder.

Adjustment procedure:

(1) Adjust the position of the release cam in the direction of the arrow so that it meets the specification.

(2) After this adjustment, repeat the check procedure.


secondary threading arm holder
REW lever
fixing screw
release cam

7-10-8. Photo Coupler Cover Height Adjustment

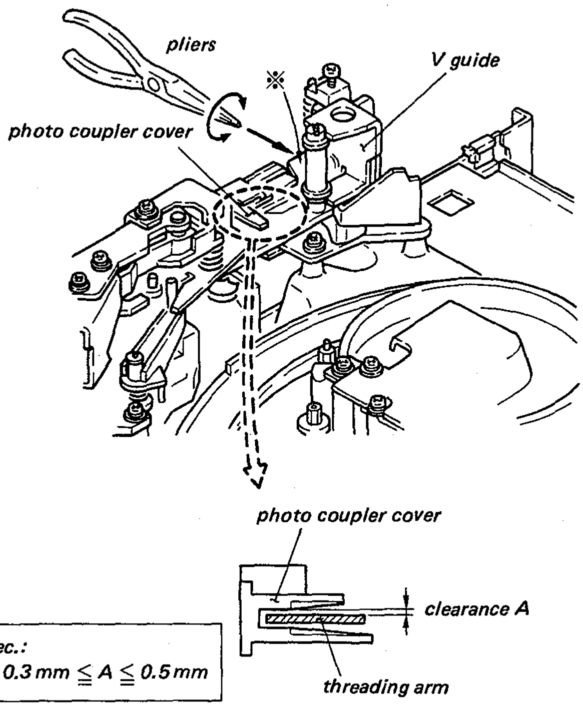
Mode: STOP

Check procedure:

(1) Check that the clearance between the threading arm and the photo coupler cover meets the required specification.

Adjustment procedure:

(1) Adjust by bending the ※ marked portion of the V guide with pliers.


pliers
V guide
※
photo coupler cover
photo coupler cover
clearance A
threading arm

Spec.:
0.3 mm $\leqq A \leqq$ 0.5 mm

7-10-9. 5th Guide Operating Position Adjustment

Tool: KCS-20 cassette tape

Mode: Repeat the EJECT and STOP operations

Check procedure:

(1) Energize the tape beginning/end sensors.

(2) Take the KCS-20 cassette-tape (use the end section of the tape), and turn the take-up reel hub by hand a counter-clockwise direction as far as it will go.

(3) Insert the cassette into the machine with the power off.

(4) Turn on the power and put the machine into the threading mode. Check that the 5th guide fits the V guide as shown in the figure.

(5) Repeat the EJECT and STOP operations several times. Checking every time.

Adjustment procedure:

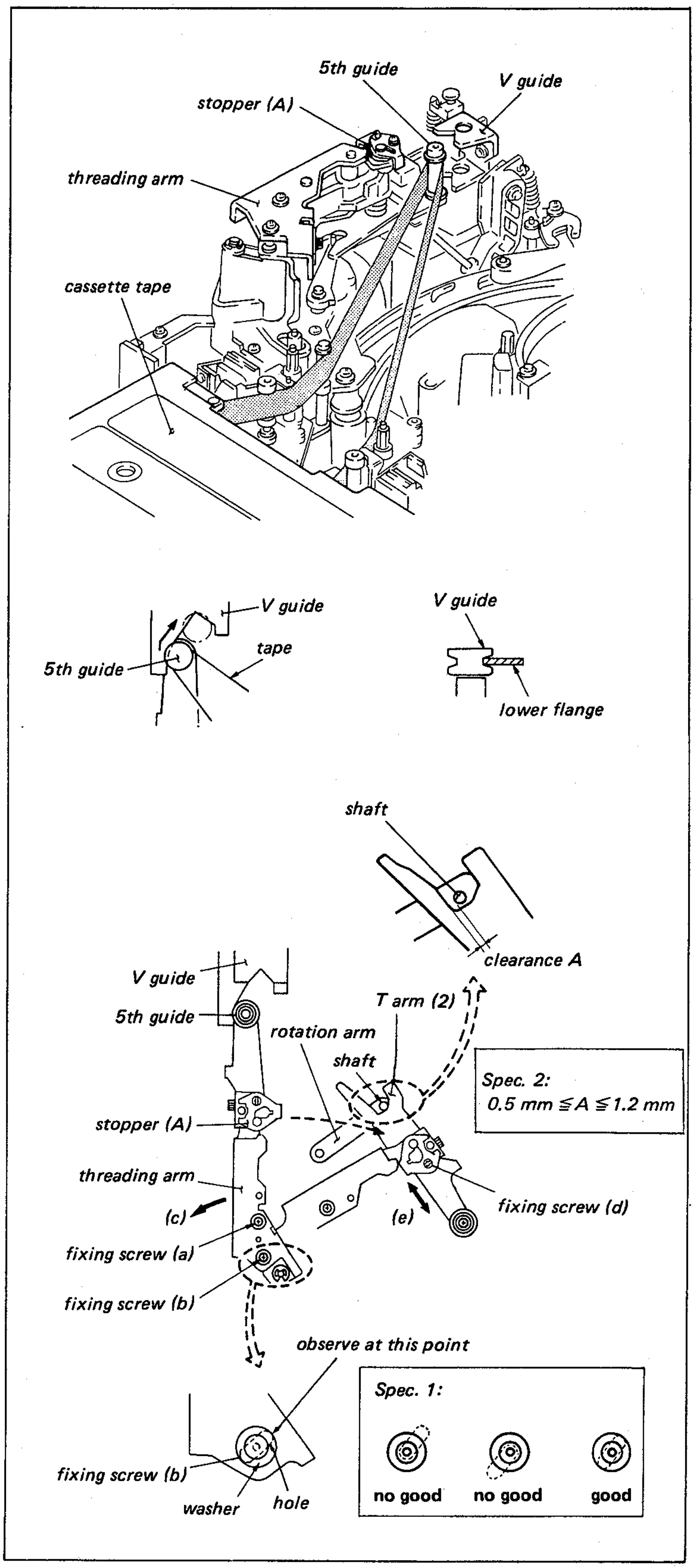
(1) Remove the cassette tape.

(2) Put the machine into STOP mode. Put the 5th guide in the position shown in the figure by turning the pulley of the threading motor with hand.

(3) Loosen the fixing screws (a) and (b), and slide the threading arm in the direction of the arrow (c). Adjust the position of the threading arm so that the relationship between the washer of screw (b) and the screw hole of the threading arm meets the specification (1).

(4) Turn the pulley of the threading motor so that the T arm (2) is in the position shown in the figure.

(5) Loosen the fixing screw (d) and then slide the stopper (A) in the direction of the arrow (e). Adjust so that clearance (A) meets specification as shown in the figure, and tighten the screw.


5th guide
V guide
stopper (A)
threading arm
cassette tape
V guide
tape
5th guide
V guide
lower flange
shaft
clearance A
V guide
T arm (2)
5th guide
rotation arm
shaft
Spec. 2:
0.5 mm ≦A ≦1.2 mm
stopper (A)
threading arm
(c)
(e)
fixing screw (d)
fixing screw (a)
fixing screw (b)
observe at this point
Spec. 1:
fixing screw (b)
washer
hole
no good
no good
good

7-10-10. 5th Guide Unthreading Position Adjustment

Mode: STOP to EJECT completion

Check procedure:

(1) Put the machine into STOP mode once and put into EJECT completion mode by pushing the EJECT button.

(2) Check that the clearance between the 5th guide and the 5th guide holder meets the required specification.

Adjustment procedure:

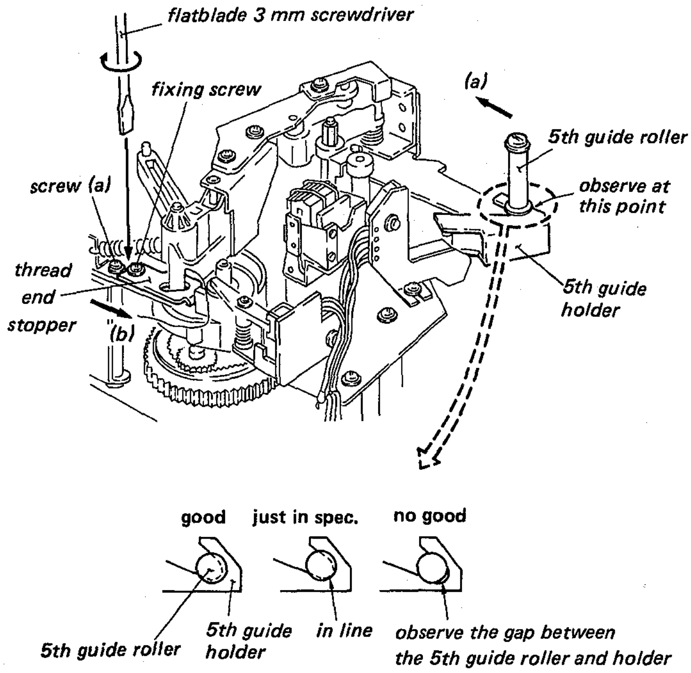
(1) Put the machine into EJECT completion mode.

(2) Loosen the fixing screw about two turns.

(3) Rotate the pulley of the threading motor two or three turns so that the 5th guide roller fits into the 5th guide holder.

(4) Tighten the fixing screw, and then loosen it about 1/2 turn.

(5) Insert a flatblade 3mm screwdriver between the thread end stopper and the screw (a), and turn the screwdriver in the direction shown with a arrow. Move the thread end stopper in the direction of arrow (b) with the screwdriver until the 5th guide roller moves in the direction of arrow (a) and tighten the screw.


flatblade 3 mm screwdriver
fixing screw
(a)
5th guide roller
screw (a)
observe at this point
thread end stopper
(b)
5th guide holder
good
just in spec.
no good
5th guide roller
5th guide holder
in line
observe the gap between the 5th guide roller and holder

Spec.:
No gap visible between the 5th guide roller and holder

7-10-11. Thread End Sensor Position Adjustment

Tool: KCS-20 or KCA-60 cassette tape

Check procedure:

(1) Turn off the power.

(2) Turn the take-up reel hub of the cassette by hand, and take up the slack tape.

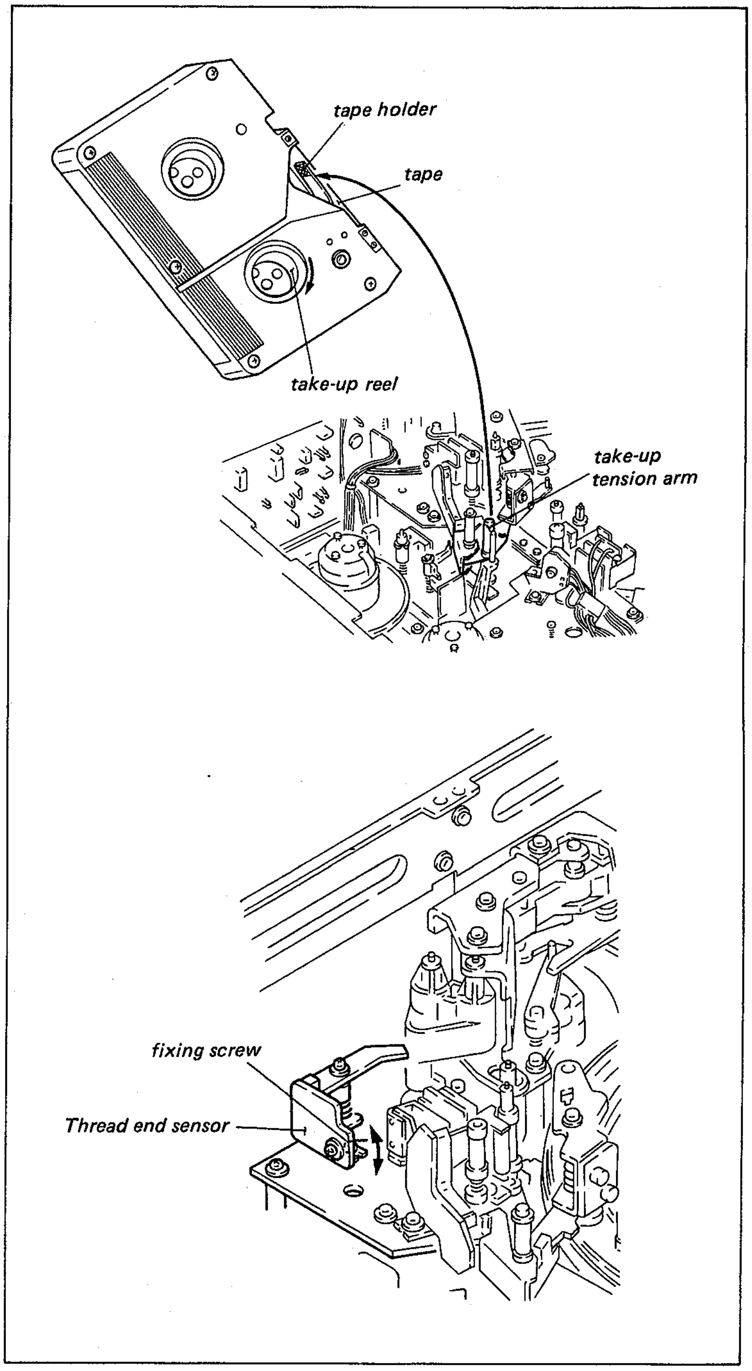
(3) Fully open the lid of cassette tape and insert the cassette tape so that the take-up tension arm is placed between the cassette tape and the tape holder.

(4) Turn the pulley of the gear box and bring the take-up tension arm into contact with the tape.

(5) Turn on the power. Check that the machine is put into the threading mode after the take-up tension arm moves toward the reel table side once.

Adjustment procedure:

(1) Adjust the position of the thread end sensor to meet the required specification.


tape holder
tape
take-up reel
take-up tension arm
fixing screw
Thread end sensor

7-10-2. Take-up Tension Arm, Unthreading Position Adjustment

Tool: KCS-20 or KCA-60 cassette tape

Check procedure:

(1) Turn the take-up reel hub of cassette tape by hand to take up the slack tape.

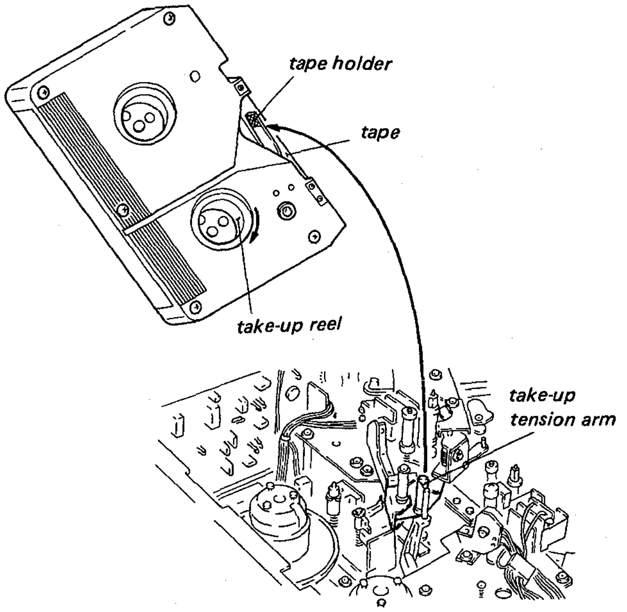
(2) Fully open the cassette tape lid and insert the cassette so that the take-up tension arm is between the tape and the tape holder.

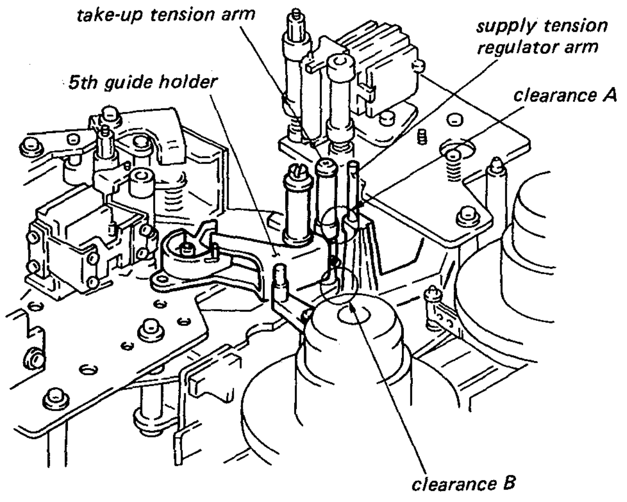
(3) Check that the tape does not make contact with the take-up tension arm.

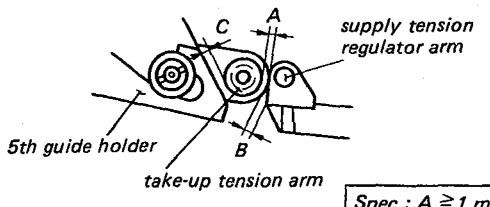
(4) Check that the relative positions of the take-up tension arm, 5th guide holder and the S tension regulator arm meet the required specification.

Adjustment procedure:

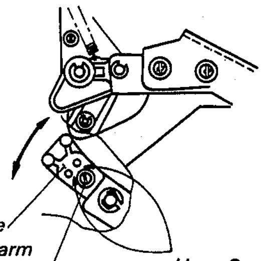
(1) Adjust the position of the 6th guide drawing arm to meet the required specification.


tape holder
tape
take-up reel
take-up
tension arm


take-up tension arm
supply tension
regulator arm
5th guide holder
clearance A
clearance B


C
A
supply tension
regulator arm
5th guide holder
B
take-up tension arm

Spec.: $A \geqq 1$ mm
$B \geqq 1$ mm
$C \geqq 0.3$ mm


6th guide drawing arm
fixing screw

Use a 3 mm flatblade screwdriver to adjust the 6th guide drawing arm by turning the fixing screw.

7-11. SP CASSETTE DETECTOR POSITION ADJUSTMENT

Tool: KSP cassette tape

Check procedure:

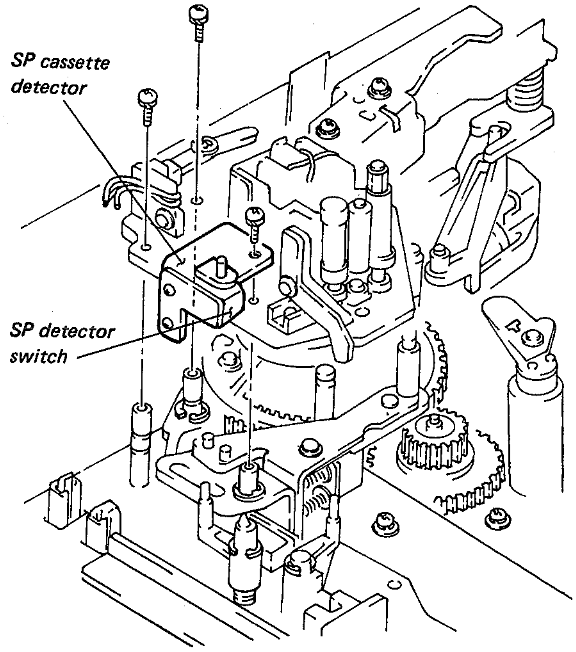
(1) Turn on the power.

(2) Insert the cassette tape.

(3) Check that the SP lamp on the front panel lights.

Adjustment procedure:

(1) Adjust the position of the SP detector switch to meet the required specification.


SP cassette detector
SP detector switch

SECTION 8
BACK TENSION AND TORQUE ALIGNMENT

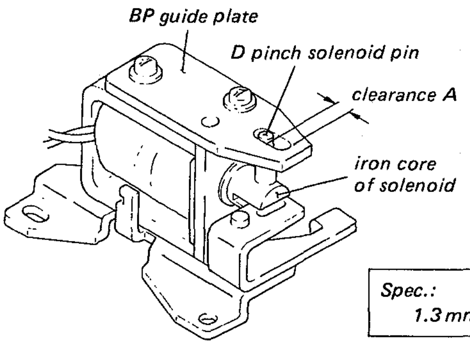
8-1. BRAKE SOLENOID MOUNTING POSITION ADJUSTMENT

This machine has independent brake solenoids for the supply and the take-up reel tables. Both are adjusted in the same way.

Tool: Thickness gauge

Adjustment procedure:

(1) After the iron core of the solenoid is pushed by hand to the energized position, adjust the position of the BP guide plate to meet the required specification.


BP guide plate
D pinch solenoid pin
clearance A
iron core of solenoid

Spec.:
1.3 mm ≦ A ≦ 1.7 mm

8-2. BRAKE LEVER ADJUSTMENT

This machine has independent reel brakes for the supply and the take-up reel tables. Adjust each brake lever independently using the same method.

Mode: EJECT completion

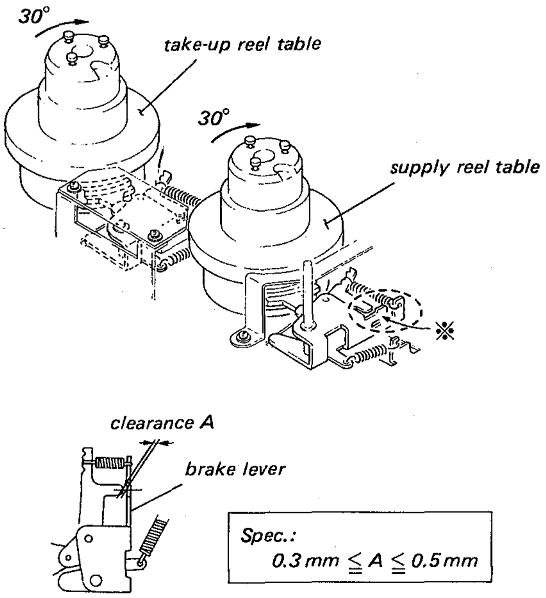
Tool: Thickness gauge

Check procedure:

(1) Grasp the reel table by hand and turn it clockwise about 30 degrees. Check clearance A meets the required specification.

Adjustment procedure:

(1) Bend the ※ marked portion of the brake lever with a pair of pliers to meet the required specification.


30°
take-up reel table
30°
supply reel table
※
clearance A
brake lever

Spec.:
0.3 mm ≦ A ≦ 0.5 mm

8-3. BRAKE TORQUE ADJUSTMENT

This machine has independent reel brakes for the supply and the take-up reel tables. Adjust each brake independently using the same method.

Mode: EJECT completion

Tool: Reel table torque measurement tape (100mm dia.)
Tension scale (200g full scale)

Preparation:

(1) Remove the handle bracket on the right side of the set.

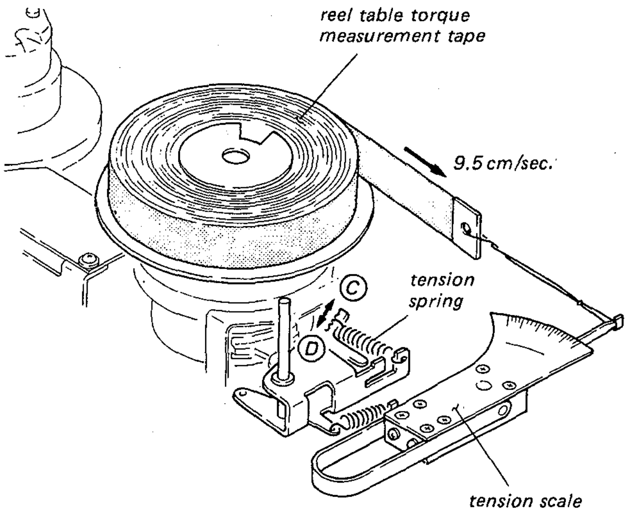
Check procedure:

(1) Install the jig tape on the reel table, Pull out the tape at a constant speed of approx. 9.5cm/sec. and confirm that the scale reading is in the specification.

Adjustment procedure:

(1) Hook the tension spring on a different notch to adjust the tension.
(C) direction: increases brake torque
(D) direction: decreases brake torque

(2) If it is not possible to meet the specification replace the brake shoe.



Spec.:
120 g ~ 160 g (on scale)
(600 g·cm ~ 800 g·cm)

8-4. FWD BACK TENSION ADJUSTMENT

Tool: Back tension adjustment jig
Reel table torque measurement tape (100mm dia.)
Tension scale (100g full scale)
Allen key (across flat has 2mm)

Preparation:

(1) Mute the tape beginning sensor and the tape end sensor.

(2) Mute the TAPE PROTECTION and the THREADING MOTOR DISABLE signals.

(3) Open the connector panel. Disconnect all connectors of the RP-18 board and remove the RP-18 board form the chassis.

(4) Turn on the power and put the machine into PLAY mode.

(5) Set the SKEW control knob to its center click (detent) position.

(6) Install the back tension adjustment jig.

(7) Install the jig tape on the supply reel table and thread the tape as shown in the figure.

(CAUTION)

Take care that the head drum is rotating at normal speed.

Check procedure:

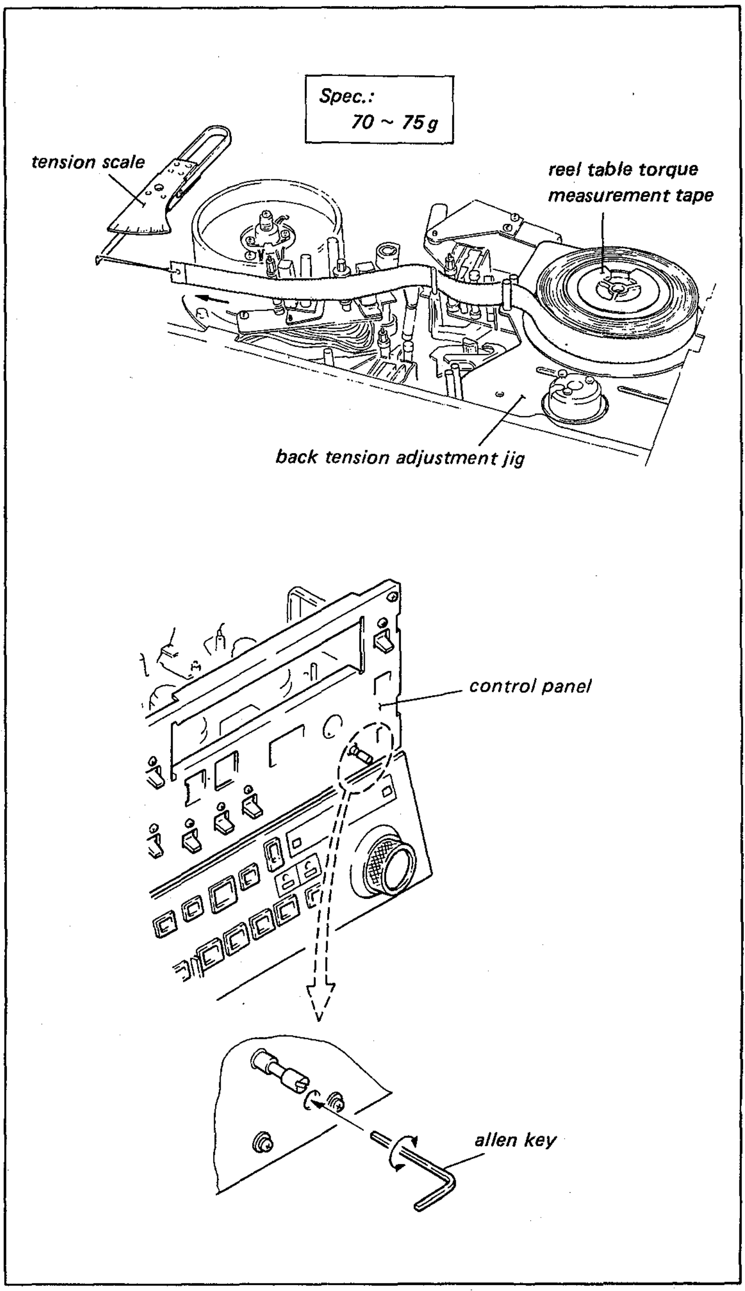
(1) Hook a tension scale on the end of the tape. Pull out the tape at a constant speed of approx. 9.5cm/sec. and confirm that the scale reading is in specification.

(2) After check and adjustment, remove the jig tape and back tension adjustment jig. Press the EJECT button.

Adjustment procedure:

(1) Insert the allen key into the hole on the control panel as shown in the figure, and turn the hexagonal socket screw to meet the adjustment specificaiton.

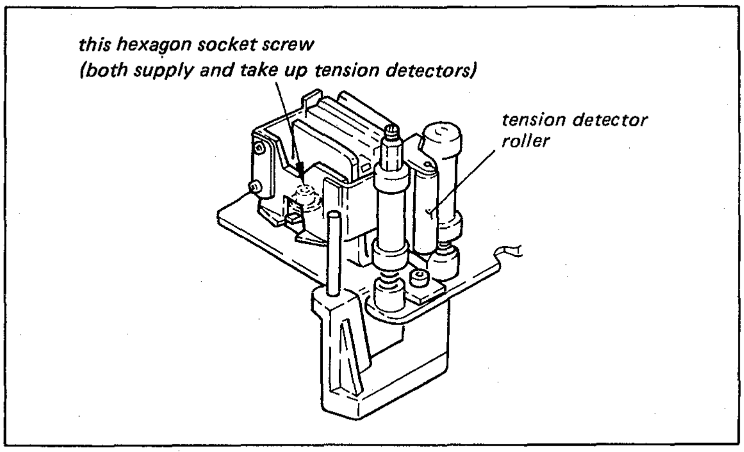
(2) If it is not possible to meet the specificaiton, replace the brake band assembly.


Spec.:
70 ~ 75g
tension scale
reel table torque measurement tape
back tension adjustment jig
control panel
allen key

8-5. TENSION DETECTOR ADJUSTMENT

(CAUTION)

Do not loosen the screw shown in the figure. The position of the tension detector roller is determined by this screw. This screw is adjusted precisely with a jig in the factory.


this hexagon socket screw
(both supply and take up tension detectors)
tension detector roller

8-5-1. Tension Detector Stopper Position Adjustment

This adjustment is required only when the tension detector is replaced or removed. This stopper controls the operating range of the tension detector.

If this adjustment is poor, optimum tape tension and normal tape movement will not be obtained. This machine has tension detectors at the supply and the take-up reel sides. The adjustment procedure described applies equally to both tension detectors.

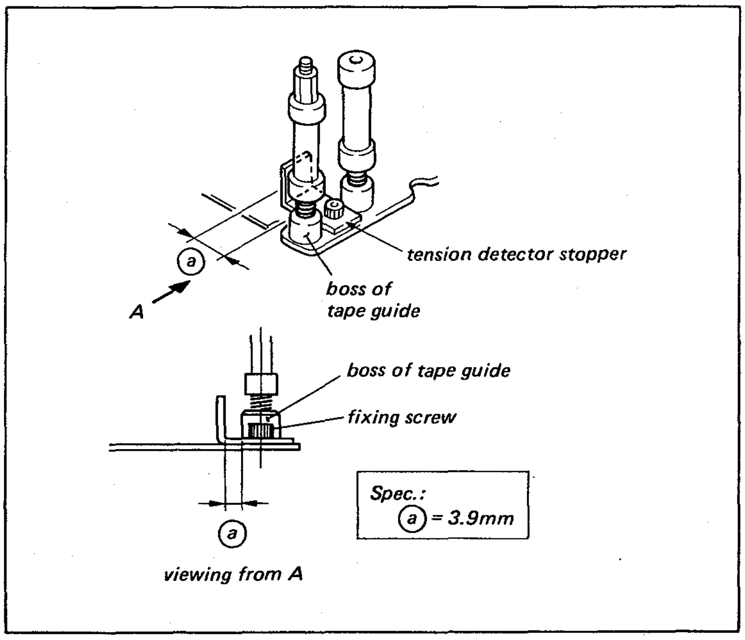
Tool: Slide vernier caliper or equivalent

Check procedure:

(1) Check that the distance between the tape guide shaft and stopper meets the specificaiton.

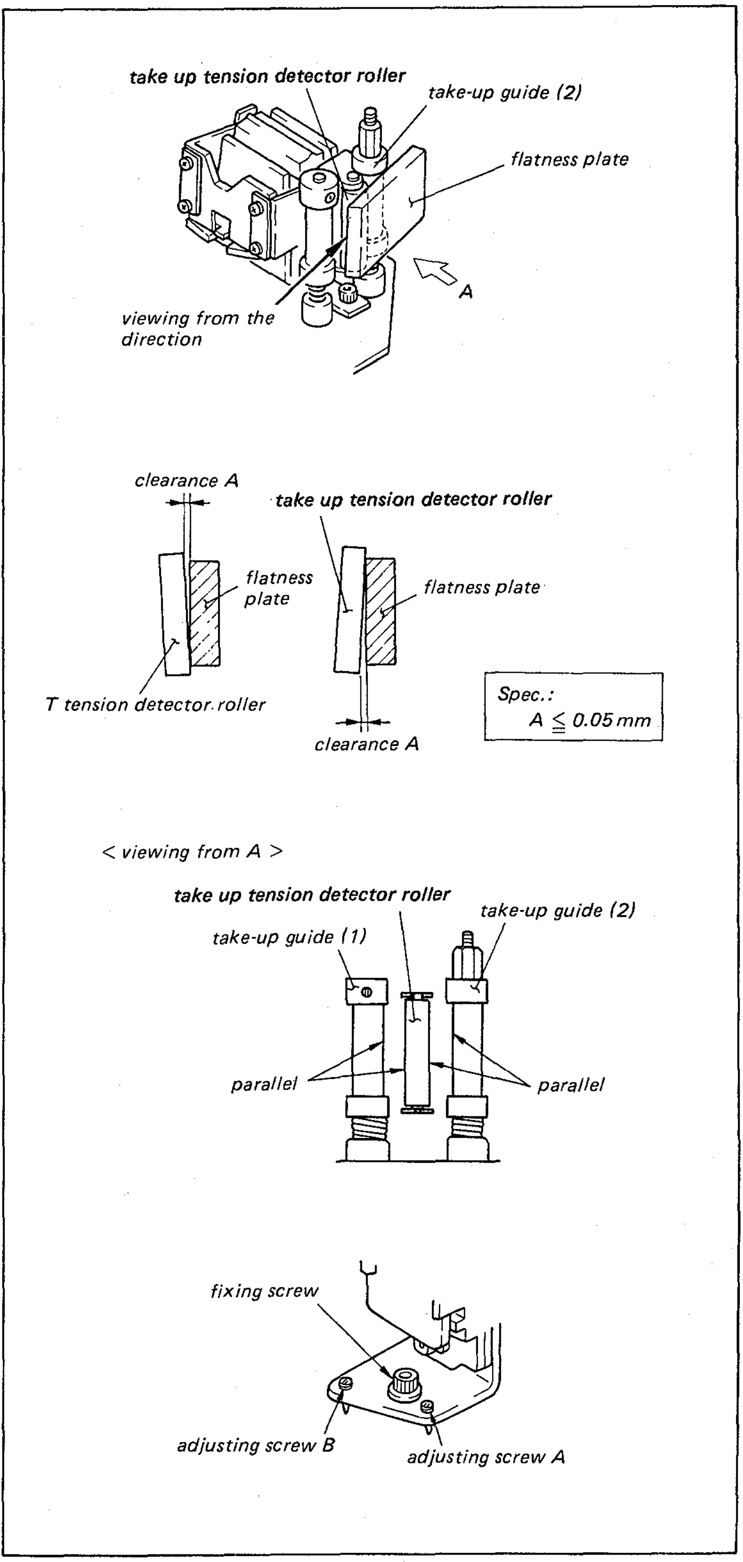
Adjustment procedure:

(1) Loosen the stopper fixing screw and then adjust the position of the stopper to meet the required specification.


ⓐ
A
tension detector stopper
boss of tape guide
boss of tape guide
fixing screw
ⓐ
viewing from A
Spec.:
ⓐ = 3.9mm

8-5-2. Take-up Tension Detector Roller Zenith Adjustment

This adjustment is performed to install the tension detector in the machine.


take up tension detector roller
take-up guide (2)
flatness plate
A
viewing from the direction
clearance A
take up tension detector roller
flatness plate
flatness plate
T tension detector roller
clearance A
Spec.:
A ≦ 0.05mm
< viewing from A >
take up tension detector roller
take-up guide (2)
take-up guide (1)
parallel
parallel
fixing screw
adjusting screw B
adjusting screw A

Mode: STANDBY

Tool: Allen key (across flat has 2mm)
Flatness plate

Check procedure:

(1) Check that the clearance between the detector roller and the flatness plate meets the required specification when the flatness plate is set on the take-up guide (2), as shown in the figure, and the flatness plate is touched lightly against the take-up tension detector roller.

(2) Check that the tension detector roller's parallel to take-up guides (1) and (2), viewing from the direction of the arrow A.

Adjustment procedure:

(1) If check procedure (1) is out of specification.

- When the clearance is out of spec. at the top of the guide loosen the fixing screw and turn the adjusting screw (A) clockwise. Tighten the fixing screw and check zenith again.
- When the clearance is out of spec. at the bottom of the guide, turn the adjusting screw (A) counterclockwise. Tighten the fixing screw and check zenith again.

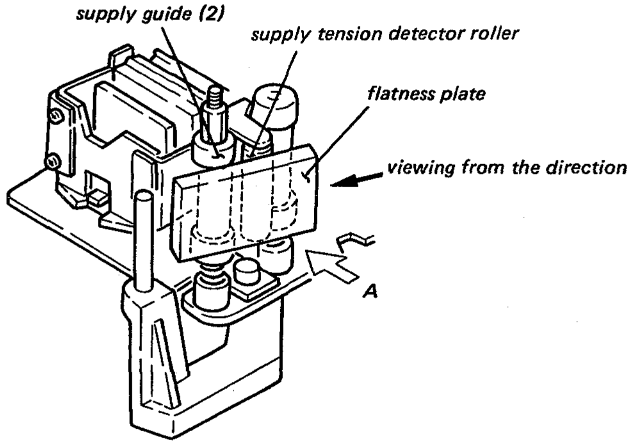
(2) If check procedure (2) is out of specificaiton.

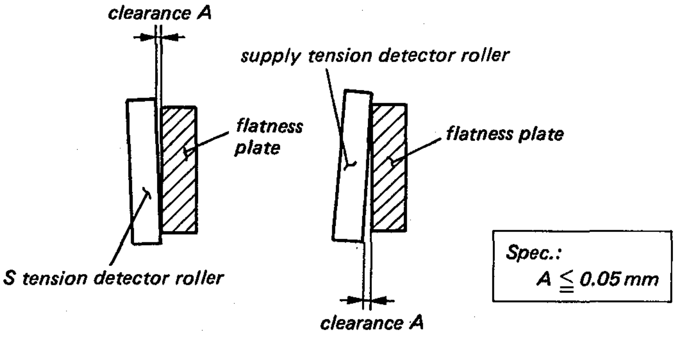
- When the clearance is out of spec. at the top of the guide loosen the fixing screw and turn adjusting screws (A) and (B) by exactly equal amounts clockwise. Tighten the fixing screw and check zenith again.
- When the clearance is out of spec. at the bottom of the guide, turn adjusting screws (A) and (B) by exactly equal amounts counter-clockwise. Tighten the fixing screw and check zenith again.

8-5-3. Supply Tension Detector Roller Zenith Adjustment

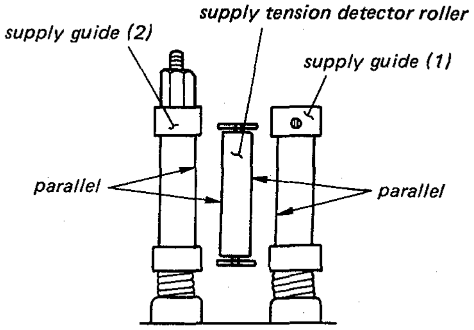
This adjustment is performed when installing the tension detector in the machine.

Mode: STANDBY
Tool: Flatness plate
Allen key (across flat has 2mm)
Check procedure:
(1) Check that the clearance between the detector roller and the flatness plate meets the required specificaiton, when the flatness plate is set on the supply guide (2) as shown in the figure and the flatness plate is touched lightly with the S tension detector roller.
(2) Check that the tension detector roller is parallel to supply guides (1) and (2) viewing from the direction of the arrow A.


supply guide (2)
supply tension detector roller
flatness plate
viewing from the direction
A


clearance A
supply tension detector roller
flatness plate
flatness plate
S tension detector roller
clearance A
Spec.:
A ≦ 0.05mm

< viewing from A >


supply tension detector roller
supply guide (2)
supply guide (1)
parallel
parallel

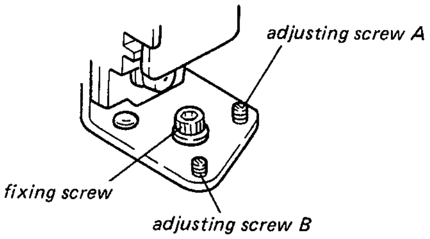
Adjustment procedure:

(1) If check procedure (1) is out of specificaiton.

- When the clearance is out of spec. at the top of the roller, loosen the fixing screw and turn the adjusting screw (A) clockwise. Tighten the fixing screw and check zenith again.
- When the clearance is out of spec. at the bottom of the roller, turn adjusting screw (A) counterclockwise. Tighten the fixing screw and check zenith again.

(2) If check procedure (2) is out of specification.

- When the clearance is out of spec. at the top of the roller, loosen the fixing screw and turn adjusting screws (A) and (B) by exactly equal amounts counterclockwise. Tighten the fixing screw and check zenith again.
- When the clearance is out of spec. at the bottom of the roller, turn adjusting screws (A) and (B) by exactly equal amounts clockwise. Tighten the fixing screw and check zenith again.



8-6. OPERATION CHECK AND ADJUSTMENT OF TENSION DETECTOR

The supply side and take-up side tension detectors operate at two points i.e. the 0g tape tension point and the 100g tape tension point. The check and adjustment procedure for these points is described here.

NOTE: These should normally only be adjusted when a new RS-4 board is being fitted.

8-6-1. Supply Tension Detector 0 Gram Point Adjustment

Mode: EJECT

Tool: Extension board
DC Voltmeter (Digital multimeter)

Preparation:

(1) Turn RV504/RS-4 board fully counter-clockwise.

(2) Connect (-) terminal/DC Voltmeter to TP511/RS-4 board and (+) terminal/DC Voltmeter to TP518/RS-4 board.

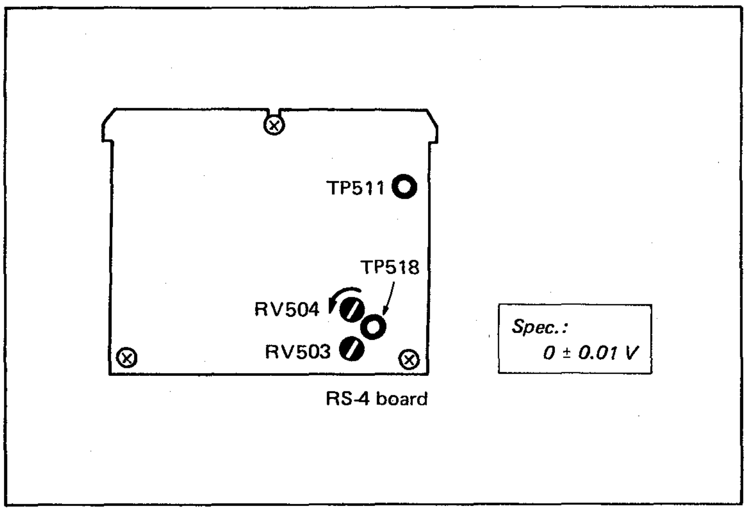
(3) Turn on the power.

Check procedure:

(1) Check that the voltage measured meets the required specification.

Adjustment procedure:

(1) Adjust RV503/RS-4 board to meet the required specificaiton.



Spec.:
0 ± 0.01 V

8-6-2. Take-up Tension Detector 0 Gram Point Adjustment

Mode: EJECT

Tool: Extension board
DC Voltmeter (Digital multimeter)

Preparation:

(1) Turn RV502/RS-4 board fully counter-clockwise.

(2) Connect (-) terminal/DC Voltmeter to TP511/RS-4 board and (+) terminal/DC Voltmeter to TP517/RS-4 board.

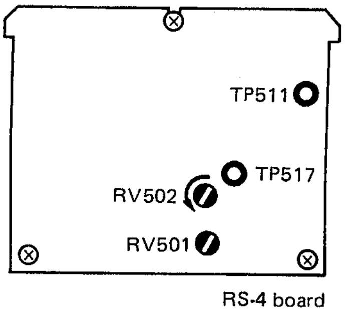
(3) Turn on the power.

Check procedure:

(1) Check that the voltage measured meets the required specification.

Adjustment procedure:

(1) Adjust RV501/RS-4 board to meet the required specificaiton.



Spec.:
0 ± 0.01 V

8-6-3. Supply Tension Detector 100 Gram Point Adjustment

Mode: STANDBY

Tool: DC Voltmeter (Digital multimeter)
specially prepared Tape (This tape should be prepared as shown in the figure.)
Tension scale (100g full scale)
Extension board

Preparation:

(1) Connect (-) terminal/DC Voltmeter to TP511/RS-4 board and (+) terminal/DC Voltmeter to TP518/RS-4 board.

(2) Mute the tape beginning sensor and tape end sensor.

(3) Mute the TAPE PROTECTION and the THREADING MOTOR DISABLE signals.

(4) Put the machine into STOP mode. Grasp the take-up and supply reel tables by hand and press the STANDBY button.

Check procedure:

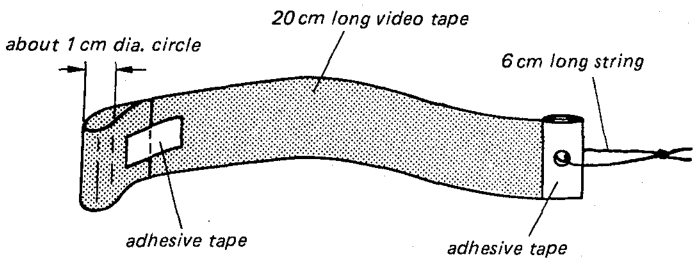
(1) Thread the special jig tape and hook a tension scale on the end of the tape as shown.

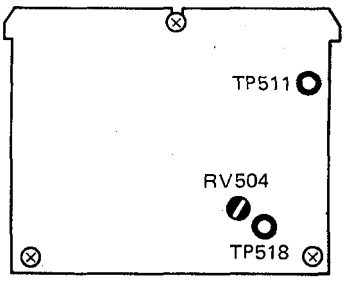
(2) Move the tension scale slowly in the direction of the arrow and set the scale 100 ± 5g. When the scale reading is over 105g, set the tension scale reading to 80g once, and then set it to 100 ± 5g.

(3) Check that the indication of the DC Voltmeter meets the required specification.

Adjustment procedure:

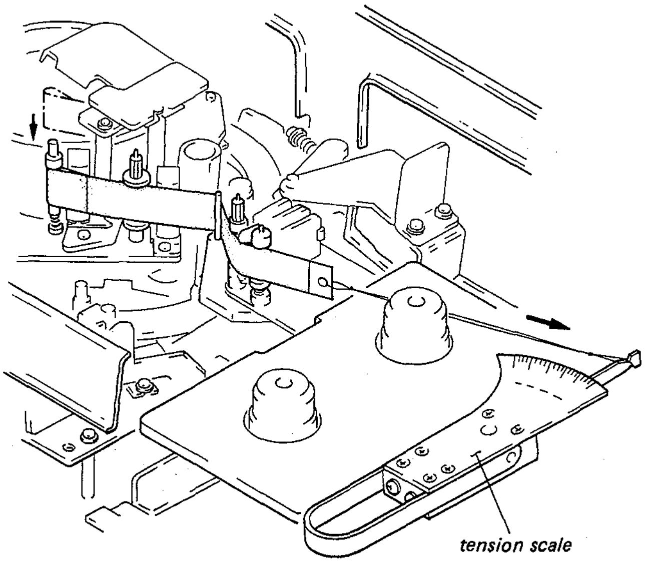
(1) Adjust RV504 to meet the required specification.


20 cm long video tape
about 1 cm dia. circle
6 cm long string
adhesive tape
adhesive tape


TP511
RV504
TP518

RS-4 board

Spec.:
0.49 ± 0.01 V


tension scale

8-6-4. Take-up Tension Detector 100 Gram Point Adjustment

Mode: STANDBY

Tool: DC Voltmeter (Digital multimeter)
Specially prepared tape
(referring sec. 8-6-3)
Tension scale (100g full scale)
Extension board

Preparation:

(1) Connect (-) terminal/DC Voltmeter to TP511/RS-4 board and (+) terminal/DC Voltmeter to TP517/RS-4 board.

(2) Mute the tape beginning sensor and tape end sensor.

(3) Mute the TAPE PROTECTION and the THREADING MOTOR DISABLE signals.

(4) Put the machine into STOP mode. Grasp the take-up and supply reel tables by hand and press the STANDBY button.

Check procedure:

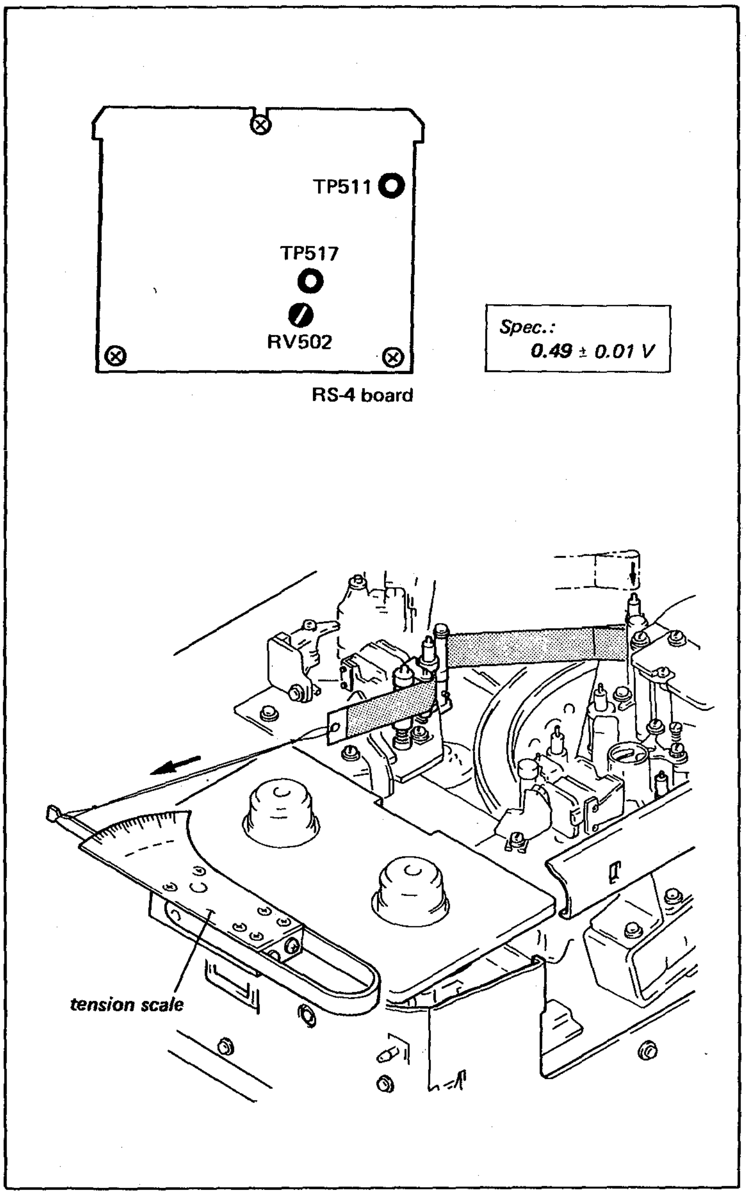
(1) Thread the special jig tape and hook a tension scale on the end of the tape as shown.

(2) Move the tension scale slowly in the direction of the arrow and set the reading to 100 ± 5g. When the scale reading is over 105g, set the tension scale reading to 80g once, and then set it to 100 ± 5g.

(3) Check that the indication of the DC Voltmeter meets the required specification.

Adjustment procedure:

Adjust RV502 to meet the required specification.



Spec.:
0.49 ± 0.01 V

8-7. TAKE-UP REEL MOTOR CURRENT SENSITIVE ADJUSTMENT

Mode: EJECT completion

Tool: Extension board
Reel table torque measurement tape (100mm dia.)
Tension scale (100g full scale)
DC Voltmeter
Constant current power supply

Preparation:

(1) Remove the RS-3 board and insert the extension board. Do not insert the RS-3 board into the end of the extension board.

(2) Disconnect CN25 on the RE-3 board.

(3) Turn on the power. Check that the take-up side reel brake is released.

(4) Connect the (-) terminal of the constant current power supply to TP3/RE-3 board, and the (+) terminal to TP4/RE-3 board.

(5) Connect the (-) terminal of the DC Voltmeter to A15/Extension board, and the (+) terminal to A16/Extension board.

(6) Install the torque measurement tape on the take-up reel table.

Check procedure:

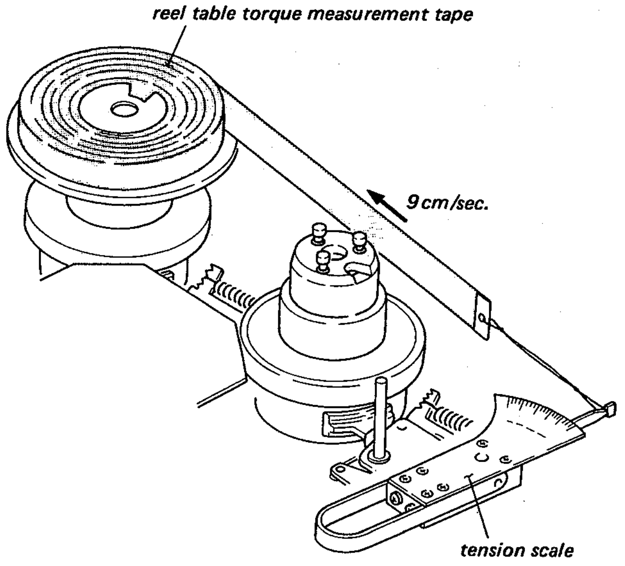
(1) If it is impossible to eject the cassette in the normal manner, it is possible to remove it by the following procedure:

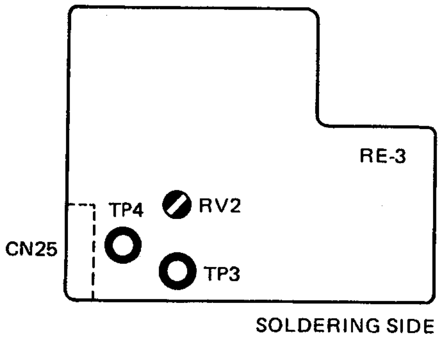
(2) Hook a tension scale on one end of the tape, as shown in the figure, and pull the tape at a constant speed of approx. 9cm/sec. and repeat procedures (1) and (2) until the scale reading comes to 96 ± 4g.
(If the measured value fluctuates, take the average reading of the tension scale.)

(3) When the scale reading is 96 ± 4g, check that the voltmeter reading meets the required specification.

Adjustment procedure:

(1) Adjust RV2/RE-3 board to meet the required specificaition.





Spec.:
121 ± 2mV

8-8. SUPPLY REEL MOTOR CURRENT SENSITIVE ADJUSTMENT

Mode: EJECT completion

Tool: Extension board
Reel table torque measurement tape (100mm dia.)
Tension scale (100g full scale)
DC Voltmeter
Constant current power supply

Preparation:

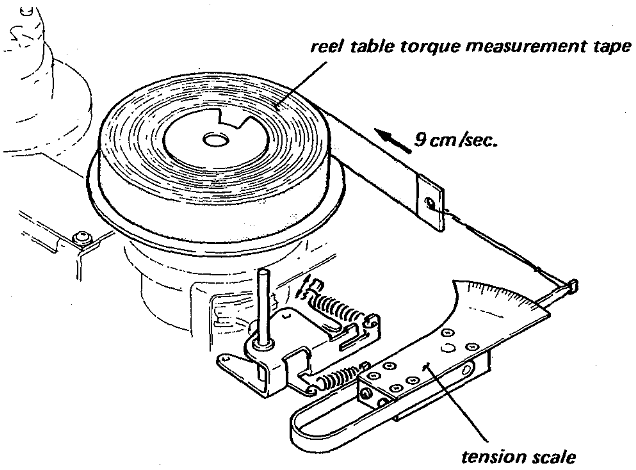
(1) Remove the RS-3 board and insert the extension board. Do not insert the RS-3 board into the end of the extension board.
(2) Disconnect CN25 on the RE-3 board.
(3) Release the supply side reel brake.
(4) Turn on the power.
(5) Connect the (-) terminal of the constant current power supply to TP2/RE-3 board, and the (+) terminal to TP4/RE-3 board.
(6) Connect the (-) terminal of the DC Voltmeter to A17/Extension board, and the (+) terminal to A18/Extension board.
(7) Install the torque measurement tape on the supply reel table.

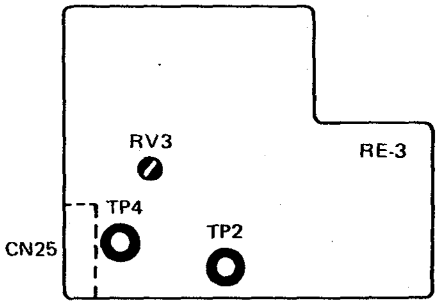
Check procedure:

(1) If it is impossible to eject the cassette in the normal manner, it is possible to remove it by the following procedure:
(2) Hook a tension scale on one end of the tape as shown in the figure and pull the tape at a constant speed of approx. 9cm/sec. and repeat procedures (1) and (2) until the scale reading comes to 96 ± 4g.
(If the measured value fluctuates, take the average reading of the tension scale.)
(3) When the scale reading is 96 ± 4g, check that the voltmeter reading meets the required specification.

Adjustment procedure:

(1) Adjust RV3/RE-3 board to meet the required specification.





Spec.:
121 ± 2mV

8-9. DME FG OUTPUT CHECK

EM-1 Board Mounting Position Adjustment should be completed before performing this check.

Tool: Extension board
Oscilloscope

Preparation:

(1) Remove the RS-3 board and insert the extension board. Insert the RS-3 board into the end of the extension board.

(2) Turn RV502 and RV504 on the RS-4 board in fully clockwise. Do not turn these veriable resistors except when the RS-4 board replacement is performed.

(3) Mute the TAPE PROTECTION signal.

(4) Connect the oscilloscope to TP20, 21, 22 or 23 on the RS-3 board according to the check procedures and connect the ground to E 2.

(5) Turn on the power.

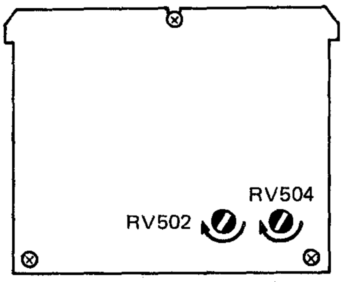
Check procedure:

(1) When the take-up reel table is turned counterclockwise by hand, check that the TP20 and 21 outputs meet the required specification.

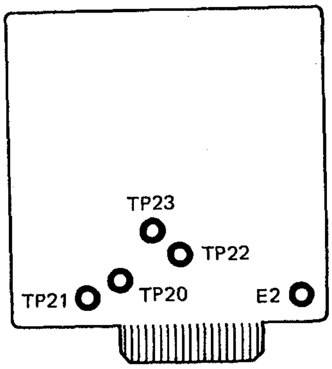
(2) When the supply reel table is turned counterclockwise by hand, check that the TP22 and 23 outputs meet the required specificaiton.

Correction procedure:

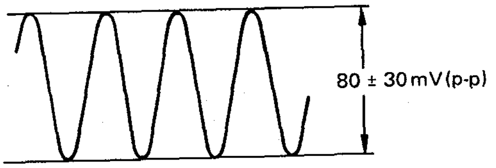
(1) Replace DME and check again.
After this adjustment, perform the sec. 8-6-3 Supply Tension Detector 100 Gram Point Adjustment and sec. 8-6-4 Take-up Tension Detector 100 Gram Point Adjustment.



RS-4 board



RS-3 board



SECTION 9
TAPE RUN ALIGNMENT

9-1. PINCH ROLLER ADJUSTMENT

9-1-1. Pinch Lever Right Angle Adjustment

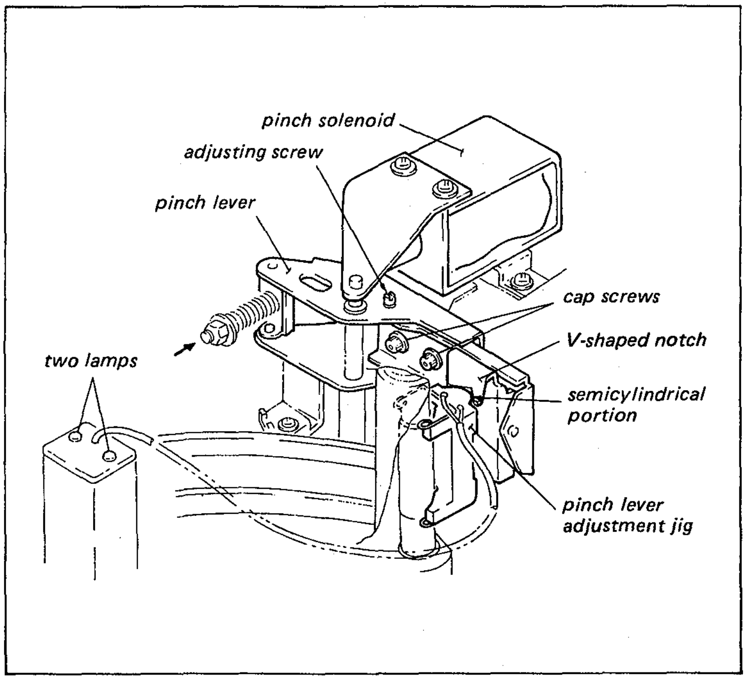
This adjustment is precisely factory-calibrated before shipment so that no adjustment is required except after replacing the pinch lever or capstan shaft.

Mode: EJECT completion
Tool: Pinch lever adjustment jig
Check procedure:

(1) Install the pinch lever adjustment jig taking care not to mark the capstan.
(2) Push the pinch lever until the V-shaped notch of the pinch lever lightly makes contact with the semi-cylindrical portion of the jig. Check that the two lamps of the jig light at the same time.

Adjustment procedure:

(1) Loosen the two cap screws of the pinch lever and adjust the adjusting screw.
(2) After this adjustment, tighten the cap screws and check again.


pinch solenoid
adjusting screw
pinch lever
cap screws
V-shaped notch
two lamps
semicylindrical portion
pinch lever adjustment jig

9-1-2. Pinch Roller Stopper Position Adjustment

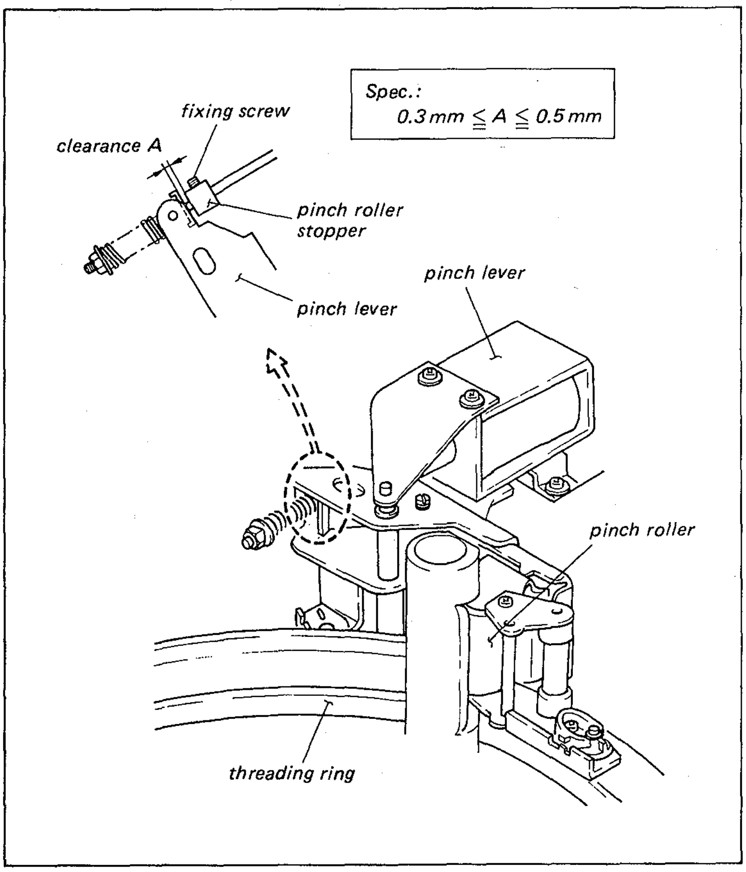
If the clearance is narrower than the specification, possible trouble is that the pinch roller pressure against the capstan shaft may be so low that the tape will not be advanced at the proper speed. If the clearance is too great, it is possible that the iron core will not be engaged.

Mode: PLAY
Tool: Thickness gauge
Check procedure:

(1) Check that the clearance between the pinch roller stopper and the pinch lever meets the required specification using a thickness gauge.
(2) Repeat pressing the PLAY and STOP buttons two or three times and check the clearance.

Adjustment procedure:

(1) Loosen the fixing screw, adjust the position of the pinch roller stopper then re-tighten the fixing screw.


Spec.:
0.3 mm ≦ A ≦ 0.5 mm
fixing screw
clearance A
pinch roller stopper
pinch lever
pinch lever
pinch roller
threading ring

9-1-3. Pinch Roller Self-Alignment Adjustment

Mode: PLAY

Check procedure:

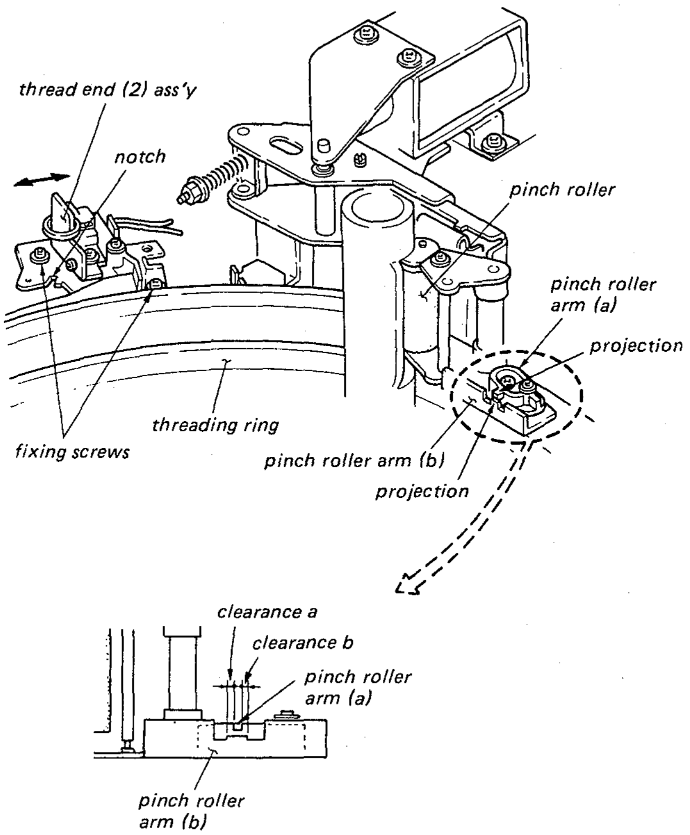
(1) Check that the relative positions of pinch roller arm (a) and pinch roller arm (b) meet the required specification.

Adjustment procedure:

(1) Loosen the fixing screw of the thread end (2) assy 1/4 turn.

(2) Insert a flatblade 3mm screwdriver into the notch, and move the thread end (2) assy in the direction shown by arrow to meet the required specification.

(3) Repeat the PLAY and EJECT modes two or three times, and check that the relative positions meet the required specification.


thread end (2) ass'y
notch
pinch roller
pinch roller arm (a)
projection
threading ring
fixing screws
pinch roller arm (b)
projection
clearance a
clearance b
pinch roller arm (a)
pinch roller arm (b)

Spec.:
Clearances a and b should exist

9-1-4. Pinch Roller Zenith Adjustment

Mode: STOP

Check procedure:

(1) Push the pinch lever A portion lightly in the direction of the arrow so that the pinch roller contacts the capstan shaft. Check that the relative positions of the pinch roller and the capstan shaft meet the required specification.

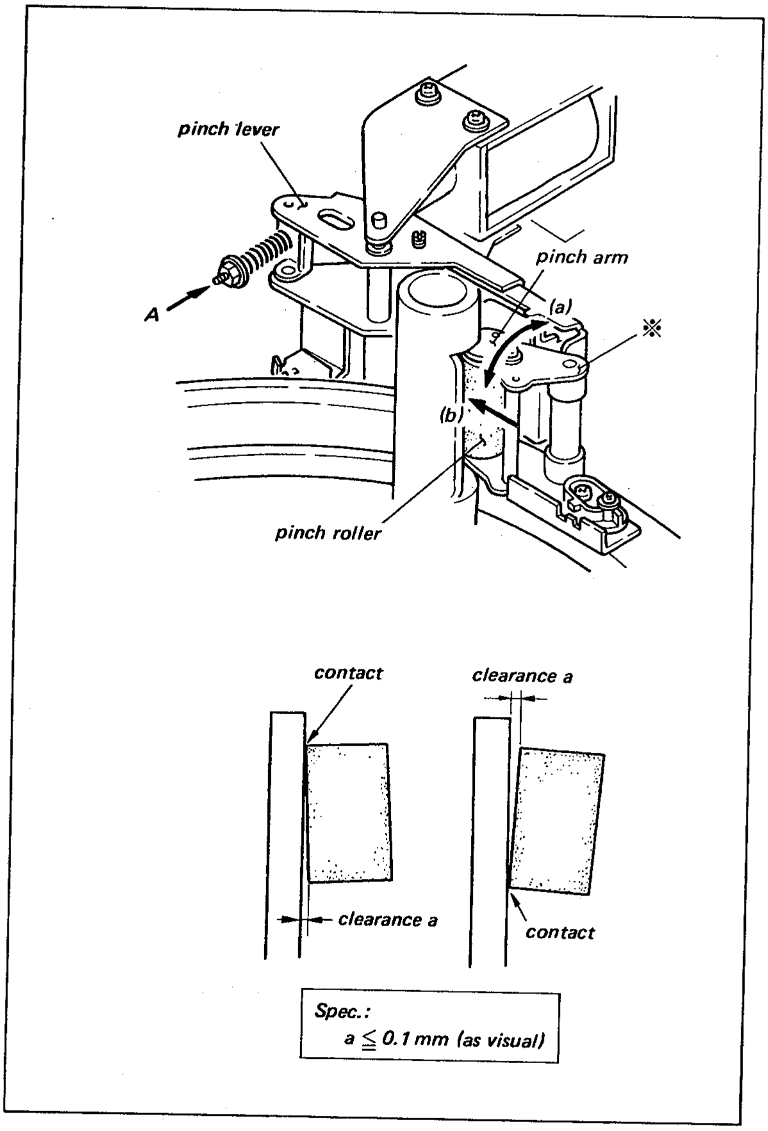
Adjustment procedure:

If the clearance is out of spec. at the bottom of the roller when the top is in contact with the capstan shaft.

(1) Hold the ※ marked portion of the pinch arm and bend it in the direction of arrow (a).

If the clearance is out of spec. at the top of the roller when the bottom is in contact with the capstan shaft.

(2) Hold the ※ marked portion of the pinch arm and bend it in the direction of arrow (b).



Spec.:
a ≦ 0.1 mm (as visual)

9-1-5. Pinch Roller Azimuth Adjustment

If this is poorly adjusted, possible trouble is that tape curl at the top and bottom flanges of tape guides (3) and (4), and threading guides (1), (2) and (3), will occur during tape threading and the tape may be damaged.

Mode: PLAY

Tool: Inspection mirror (handle)
Inspection mirror (mirror)
Continuity tester
Sony grease

Check procedure:

(1) Insert a KCA-60 cassette tape (use the middle section of the tape for this adjustment) and put the machine into threading mode.

(2) Observe the tape run during threading at TG-3, TG-4, threading guides (1), (2) and (3). Check that no tape curl at the top and bottom flanges of the tape guides occurs.

(3) Repeat the check two of three times.

Adjustment procedure:

(1) Turn the adjusting screw clockwise until the flat spring and the pinch arm are not in contact.

(2) Connect the continuity tester leads to the flat spring and pinch arm as shown in the figure. Turn the adjusting screw slowly counterclockwise until the flat spring contacts the pinch arm.

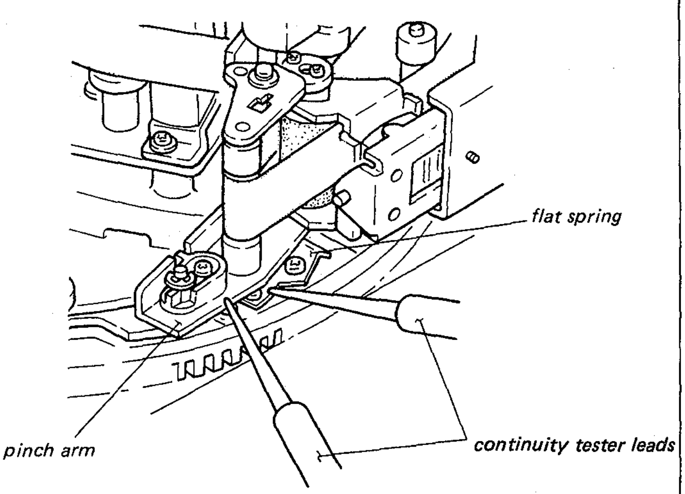
(3) Turn the adjusting screw counterclockwise a further one turn more than in procedure (2).

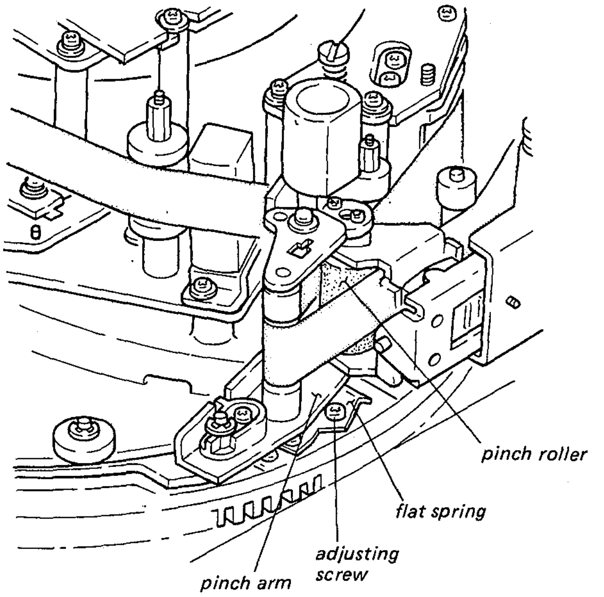
(4) Check the tape curl as check procedure. Fine-adjust the adjusting screw so that curl does not occur.

(5) Put the machine into EJECT completion mode. Push the pinch arm lightly toward the drum assy and smear a little sony grease onto the projection of the flat spring.

(CAUTION)

Take care not to smear grease onto the pinch roller and the guides.





9-1-6. Pinch Roller Preset Adjustment

Mode: STOP

Tool: Thickness gauge

Check procedure:

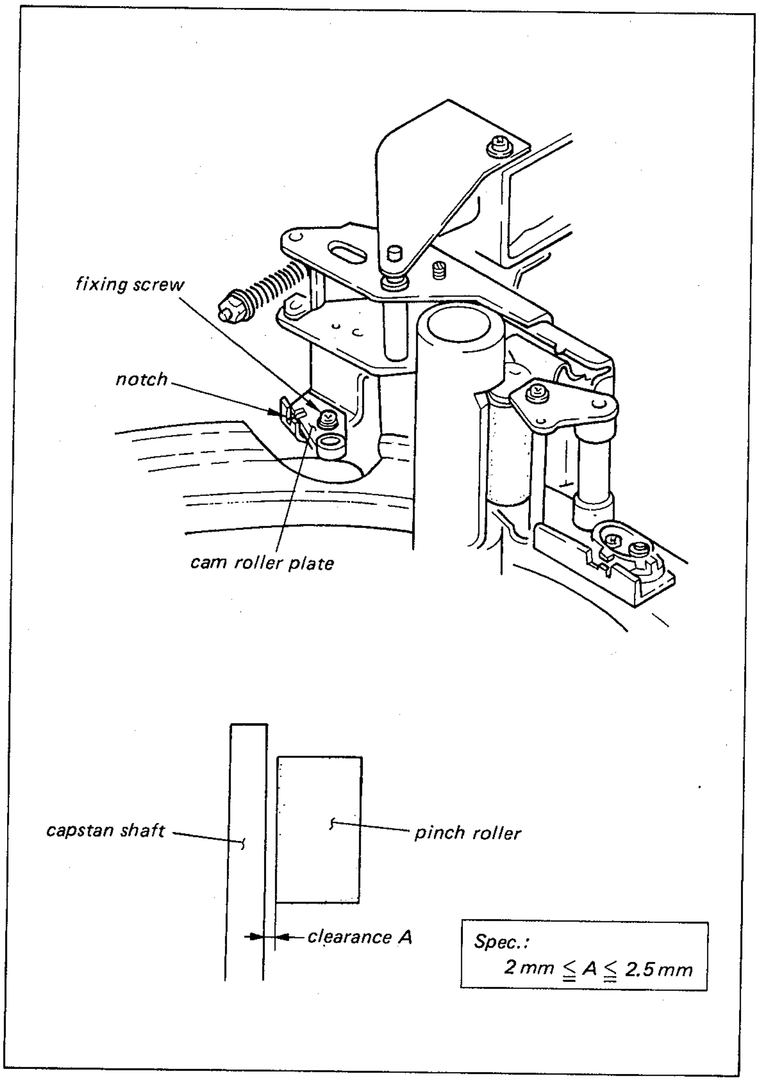
(1) Check that the clearance between the capstan shaft and the pinch roller meets the required specification.

Adjustment procedure:

(1) Loosen the fixing screw of the cam roller plate about 1/4 turn.

(2) Insert a flatblade 3mm screwdriver into the notch of the cam roller plate, and adjust it to meet the required specification.

(3) Repeat the EJECT and STOP operations two or three times and check clearance.


fixing screw
notch
cam roller plate
capstan shaft
pinch roller
clearance A
Spec.:
2 mm ≦ A ≦ 2.5 mm

9-2. FWD/REV TAPE RUN ADJUSTMENT

9-2-1. Tape Run Adjustment at Threading Guide (1)

Mode: PLAY/STOP

Tool: Allen key
(across flat has 0.9mm/1.27mm)

Check procedure:

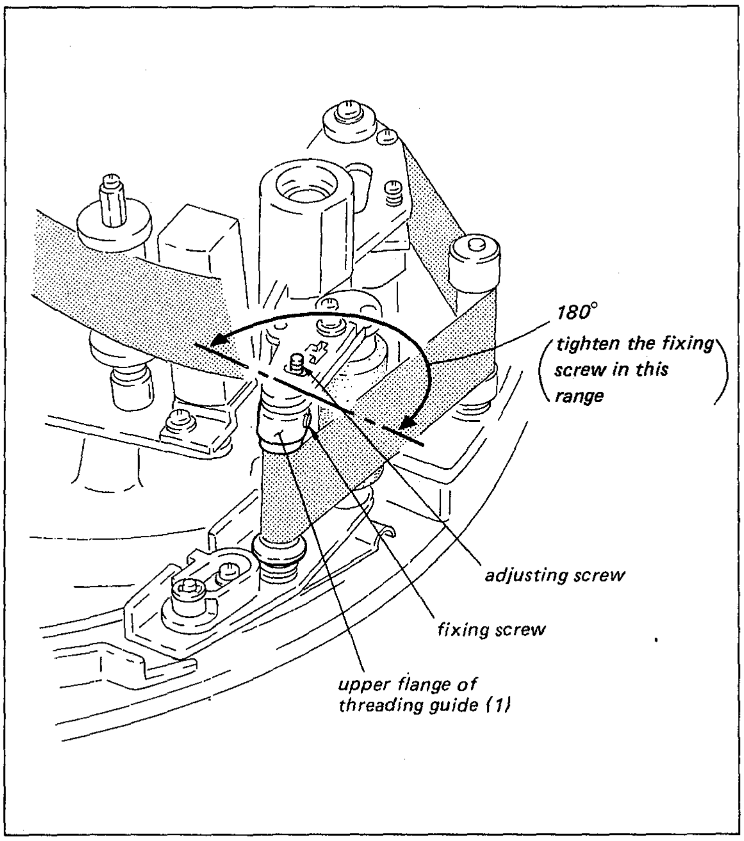
(1) Insert a KCA-60 cassette tape (use the middle section of the tape for this adjustment). Put the machine into PLAY mode. Check that the tape top edge runs in contact with the upper flange of the threading guide (1) without curl.

(2) Put the machine into STOP mode. Check that the top edge of the tape touches the upper flange of the threading guide (1) without curl.

Adjustment procedure:

(1) Loosen the fixing screw of the flange and adjust with the adjusting screw to meet the required specificaiton in PLAY mode. Do not over adjust the position of the flange. Taking the fixing screw as a reference, the flange should not be turned more than 180 degrees from its original position.

(2) Tighten the fixing screw of upper flange.


180°
tighten the fixing screw in this range
adjusting screw
fixing screw
upper flange of threading guide (1)

9-2-2. Tape Wrinle Release Adjustment at Pinch Roller

Mode: FWD (x1/30) to FWD (x5)
REV (x1/30) to REV (x5)

Tool: Allen key (across flat has 1.27mm)

Check procedure:

(1) Insert a KCA-60 cassette tape (use the middle section of the tape for this adjustment). Put the machine into REV (x1) mode. Observe the surface of the running tape very carefully in section A as shown in the figure. Check that the amount of tape tension is equal at the top and bottom of the tape. The tape wrinkle should be as shown in the figure.

(2) Repeat for the FWD (x1/30) to (x5) and the REV (x1/30) to (x5) modes. Observe the surface of the running tape very carefully in section A as shown in the figure. Check that the amount of tape tension is exactly equal.

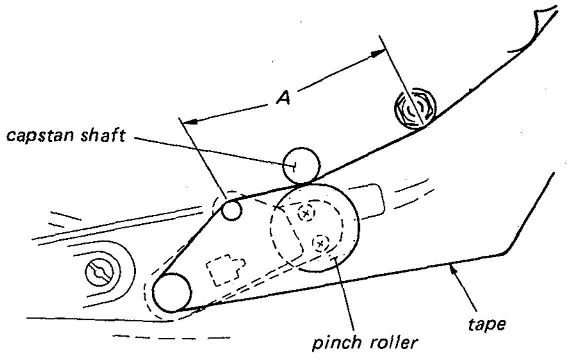
(3) Put the KCA-60 cassette tape at the tape beginning section. Put the machine into the FWD (x1) and REV (x1) mode. Check that the tape wrinkle, that occurs when the pinch roller presses against the capstan, disappears within 1.5 seconds.

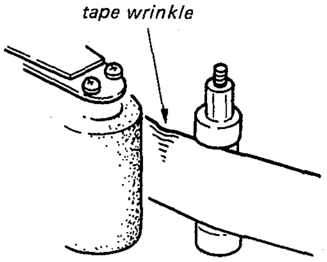
(4) Put the machine into the FWD (x5) and REV (x5) modes. If tape wrinkle disappears quickly and leaves no permanent mark then it is acceptable.

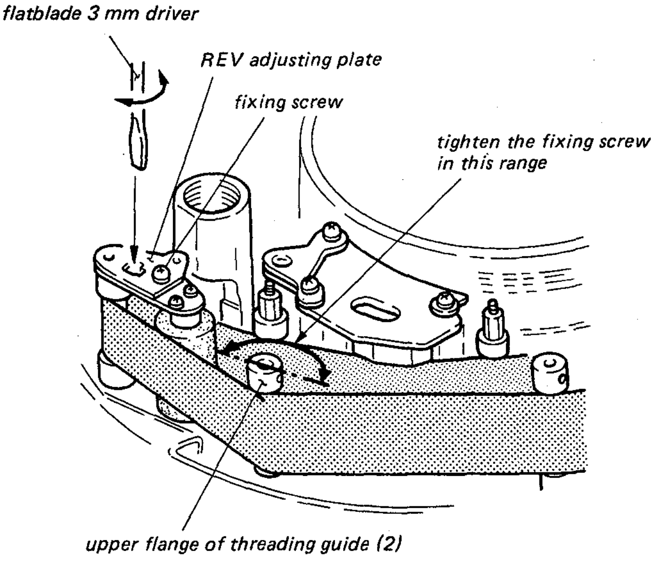
(5) Wind the tape to the end section. Check the tape wrinkle in the same manner as in Steps (3) and (4).

Adjustment procedure:

(1) Fine-adjust the position of the upper flange of the threading guide (2) to satisfy the specification.


A
capstan shaft
pinch roller
tape


tape wrinkle


flatblade 3 mm driver
REV adjusting plate
fixing screw
tighten the fixing screw in this range
upper flange of threading guide (2)

(CAUTION)

Tighten the fixing screw of the upper flange within the range shown in the figure.

(2) If the tape tension at the two points is not made exactly equal by Step (1), loosen the fixing screw of the REV adjusting plate 1/4 to and 1/2 turn, and insert a flatblade 3mm screwdriver into the hole, and turn the screwdriver in the direction arrowed until the tape tension at the two points is exactly equal.

9-2-3. Tape Run Adjustment at Correction Guide (A)

Mode: FWD (x1), REV (x1)

Check procedure:

(1) Insert a KCA-60 cassette tape (use the middle section of the tape for this adjustment) and put the machine into FWD (x1) mode.

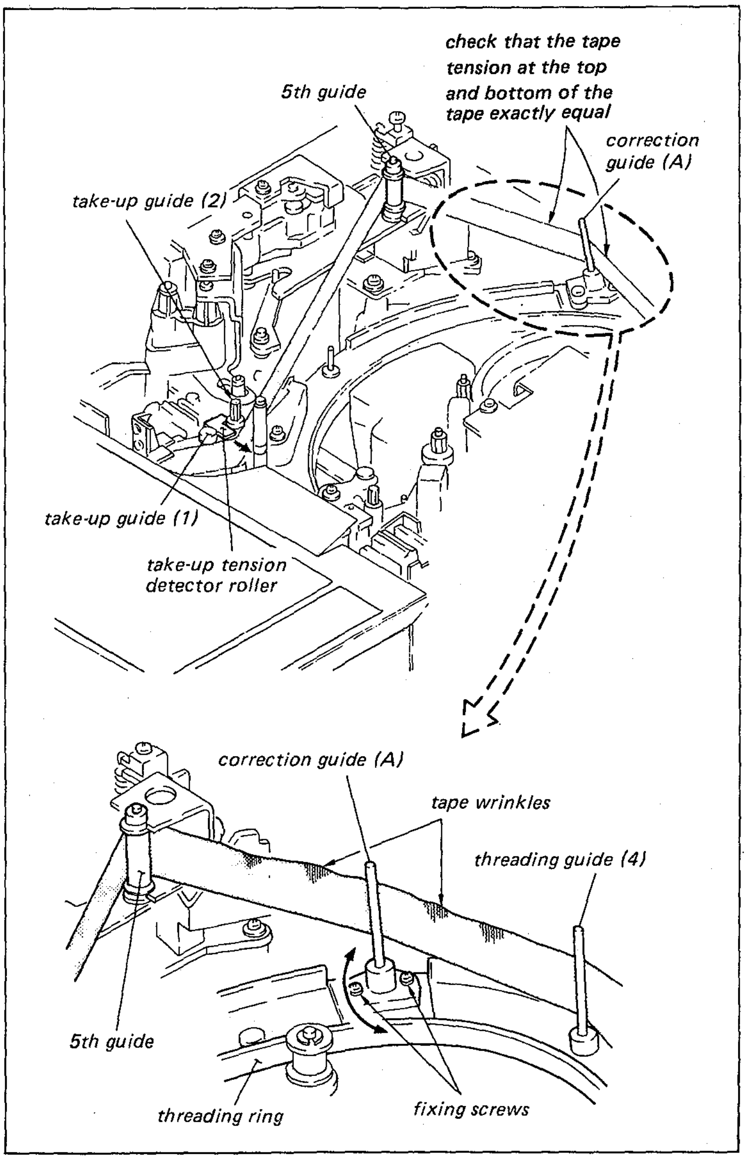
(2) Observe the surface of the running tape very carefully in the area shown in the figure. Check that the amount of tape tension is equal at the top and bottom of the tape.

(3) Put the machine into REV (x1) mode. Check the tape tension in the same manner as in Step (2).

(4) Put the machine into FWD (x1) mode. Press the T-tension detector roller lightly by hand in the direction of the arrow. Check that the tape runs without curl at the top and bottom flanges of 5th guide.

Adjustment procedure:

(1) Loosen the fixing screw of correction guide (A) 1/2 turn and move the guide in the direction of the arrow to meet the required specification in all modes.



check that the tape tension at the top and bottom of the tape exactly equal
5th guide
correction guide (A)
take-up guide (2)
take-up guide (1)
take-up tension detector roller
correction guide (A)
tape wrinkles
threading guide (4)
5th guide
threading ring
fixing screws

9-2-4. Tape Run Adjustment at 6th Guide

Mode: FWD (x1), REV (x1)

Check procedure:

(1) Insert a KCA-60 cassette tape (use the middle section of the tape for this adjustment). Put the machine into FWD (x1) mode.

(2) Check that the tape runs without curl at the top and bottom flanges of the 6th guide and take-up guides (1) and (2).

(3) Perform check (2) in the REV (x1) mode.

(4) Put the machine into the FWD (x1) mode. Push the take-up tension detector roller lightly by hand in the direction of the arrow. Check that the tape runs without curl at the top and bottom flanges of take-up guides (1) and (2).

Adjustment procedure:

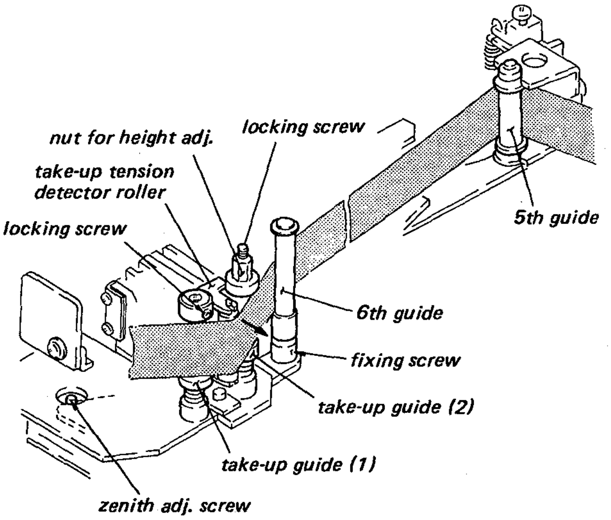
If tape curl is observed in checks (2) and (3).

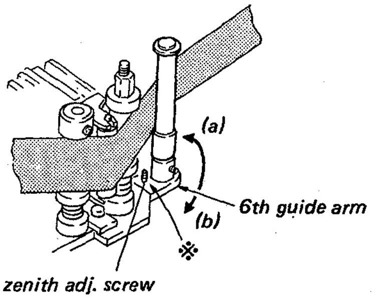
(1) If tape curl is seen at the 6th guide, loosen the fixing screw and adjust the height. If tape curl is seen at take-up guides (1) and (2), loosen the locking screw of take-up guide (2). Turn the adjusting nut and adjust the height.

If tape curl is observed in check (4).

(2) If tape curl is seen at the top and bottom flanges of take-up guides (1) and (2), turn the 6th guide zenith adjusting screw clockwise.

If tape curl is seen at the bottom flange, turn the adjusting screw counterclockwise. Do not rotate the zenith adjusting screw more than one full turn clockwise or counterclockwise.


nut for height adj.
locking screw
take-up tension detector roller
locking screw
5th guide
6th guide
fixing screw
take-up guide (2)
take-up guide (1)
zenith adj. screw


(a)
(b)
6th guide arm
zenith adj. screw

9-2-5. Tape Run Adjustment at S Guide (1) and (2)

Mode: FWD (x1), REV (x1)
Tool: Alignment tape

Oscilloscope
Extension board

Check procedure:

(1) Insert a KCA-60 cassette tape (use the middle section of the tape for this adjustment) and put the machine into FWD (x1) mode.

(2) Check that there is no curl at supply guides (1) and (2), TG1 and TG2.

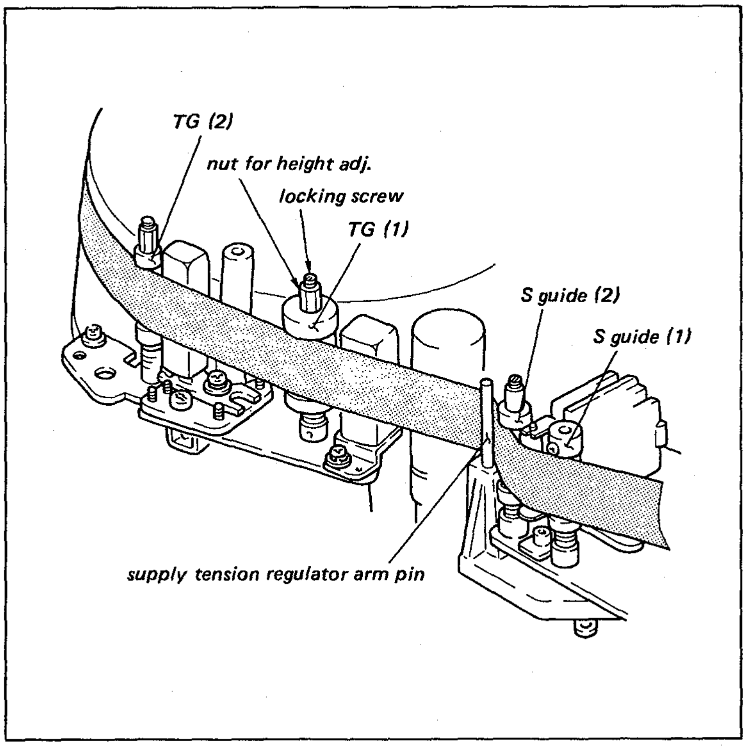
(3) Check that the amount of tape tension at the top and bottom of the tape is equal at the supply tension regulator.

Adjustment procedure:

(1) Connect the oscilloscope to TP29/YD-17 board and externally trigger from TP3/YD-17 board.

(2) Playback the color-bar or monoscope section of the alignment tape.

(3) Adjust the height of the guides for minimum RF envelope fluctuation and minimum tape curl at supply guides (1) and (2), TG1 and TG2. Adjust height so that amount of tape tension at the supply tension regulator is exactly equal at the tape top and tape bottom. Do not adjust the slantness of the supply tension regulator arm pin.



9-2-6. FWD/REV Tape Run Overall Adjustment

Mode: FWD (X1), REV (x1)

Check procedure:

(1) Insert a KCA-60 cassette tape. Repeat putting the machine into the FWD (x1) and the REV (x1) modes. Check as follows.

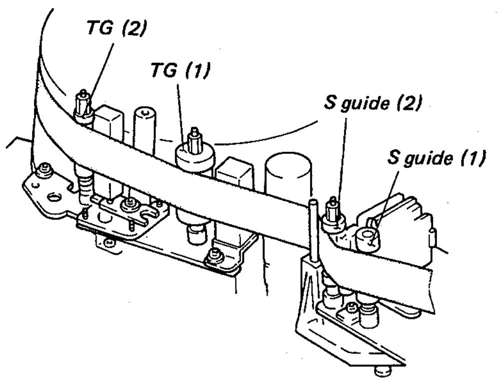
(2) Check that there is no curl at supply guides (1) and (2), TG1 and TG2. Tape curl, if it exists in the FWD (x1) or REV (x1) modes, should meet the specification. Observe the surface of the running tape very carefully at the supply tension regulator. Check that the amount of tape tension at the tape top and tape bottom is exactly equal.

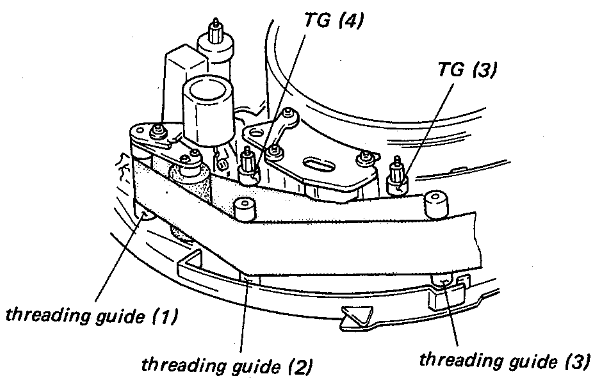
(3) Check that there exists no tape curl at TG3, TG4 and threading guide (2). Tape curl, if it exists in the FWD (x1) or the REV (x1) modes, should meet the specificaton. Check that no tape curl exists at threading guide (1).

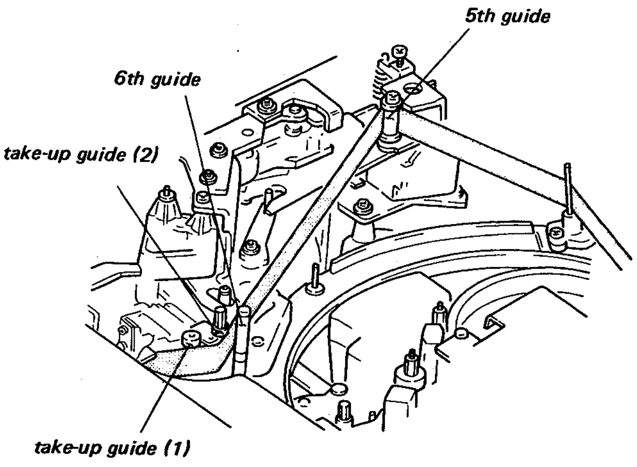
(4) Check that no tape curl exists at the 5th guide. Tape curl, if it exists in the FWD (x1) or the REV (x1) mode, should meet the required specificaton. Check that no tape curl exists at take-up guides (1) and (2) and the 6th guide.

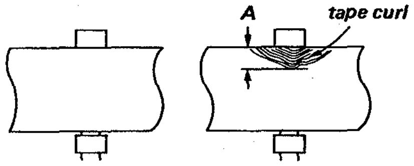
Adjustment procedure:

(1) If tape curl does not meet the required specificaiton, perform sec. 9-2 FWD/REV Tape Run Adjustment.


TG (2)
TG (1)
S guide (2)
S guide (1)


TG (4)
TG (3)
threading guide (1)
threading guide (2)
threading guide (3)


5th guide
6th guide
take-up guide (2)
take-up guide (1)



Spec.:

Minimum tape curl in REV and FWD modes. If tape curl exists in either FWD or REV mode it should be within the following limit.

Acceptable tape curl $A \leqq \frac{\text{tape width}}{4}$

9-2-7. Supply Tension Regulator Arm Pin Slantness Adjustment

This adjustment is usually not required. Perform the following procedure only when the supply tension regurator arm block is replaced or removed.

Mode: STANDBY
Tool: Flantness plate
Check procedure:

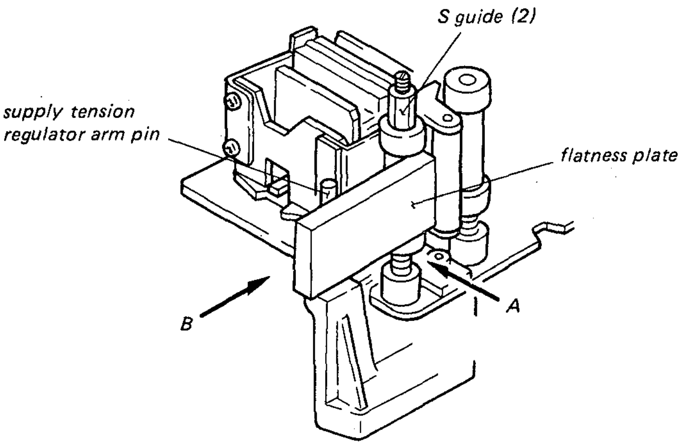
(1) Set the flatness plate on the supply guide (2) as shown in the figure. Press the flatness plate lightly against supply tension regulrator pin. Check that the clearance between the supply tension regulator pin and the flatness plate meets the required specification.

(2) Check that the clearances between the supply tension regulator pin and the supply guide (2) are equal at the top and bottom viewing from the direction of arrow A.

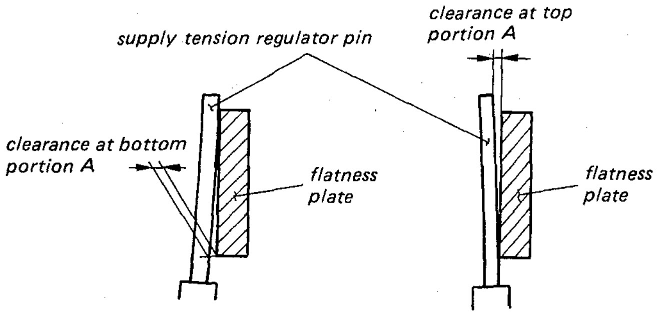
Adjustment procedure:

(1) If check procedure (1) is out of specification.
When the clearance is out of spec. at the top, loosen the fixing screw about a 1/2 turn and turn adjusting screws A and B exactly equal amounts clockwise. Tighten the fixing screw and check again.
When the clearance is out of spec. at the bottom, turn adjusting screws A and B exactly equal amounts counterclockwise. Tighten the fixing screw and check again.

(2) If check procedure (2) is out of specification.
When the clearance is out of spec. at the top, loosen the fixing screw about a 1/2 turn and turn adjusting screws A and B exactly equal amounts clockwise. Tighten the fixing screw and check again.

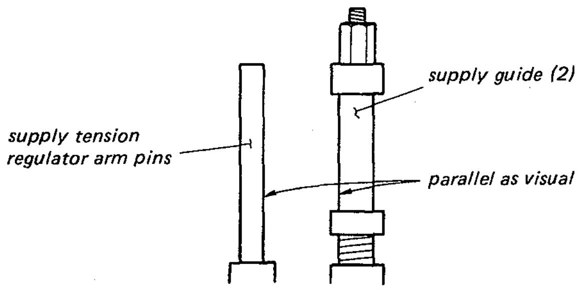

S guide (2)
supply tension regulator arm pin
flatness plate
B
A

< viewing from B >

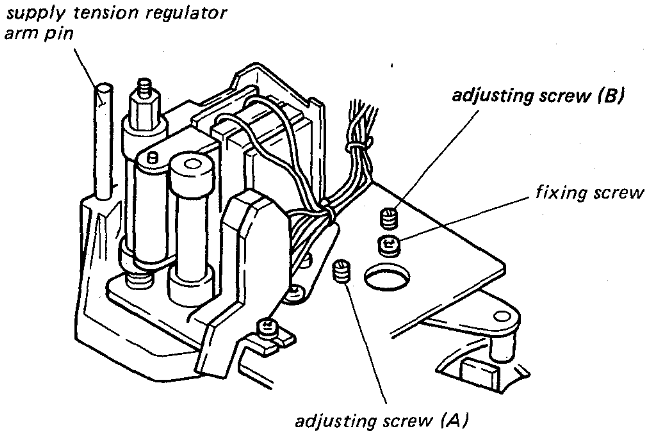

supply tension regulator pin
clearance at top portion A
clearance at bottom portion A
flatness plate
flatness plate

Spec.:
Clearance at top or bottom portion A $\leq$ 0.05 mm

< viewing from A >


supply guide (2)
supply tension regulator arm pins
parallel as visual

When the clearance is out of spec. at the bottom, turn adjusting screws A and B exactly equal amounts counter-clockwise. Tighten the fixing screw and check again.


supply tension regulator arm pin
adjusting screw (B)
fixing screw
adjusting screw (A)

9-3. VIDEO TRACKING ADJUSTMENT

Tool: Alignment tape,

Flatness plate
Extension board
Oscilloscope

Preparation:

(1) Connect the oscilloscope to TP29/YD-17 board, and externally trigger from TP3/YD-17 board.

(2) Turn on the power.

(3) Playback the color-bar section of the alignment tape.

Check procedure:

(1) While observing the waveform on the scope, turn the TRACKING control knob in both directions noting that the RF waveform maintains a flat envelope while the amplitude increases and decreases.

(2) Confirm that the RF waveform fluctuation and head-to-tape contact are within specification when the RF envelope is made as large as possible by turning the TRACKING control knob.

Adjustment procedure:

When performing the tape guide height adjustment, loosen the locking screw of tape guides.

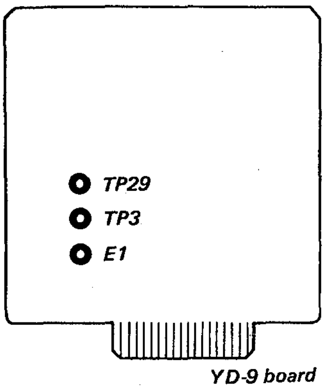
When the tracking at the drum's input side is out of specification:

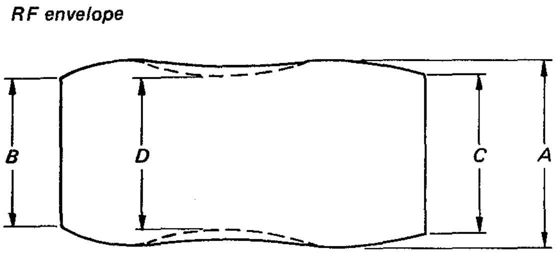
(1) Set the TRACKING control knob so that the RF waveform amplitude is 70 to 80 % of the maximum amplitude.

(2) Adjust height of tape guides TG-1 and TG-2 and supply tape guide 2. Do not adjust the slantness of the supply tension regulator arm.

When the tracking at the drum's exit side is out of specification:

(3) Set the TRACKING control knob so that the RF waveform amplitude is 70 to 80 % of the maximum amplitude.





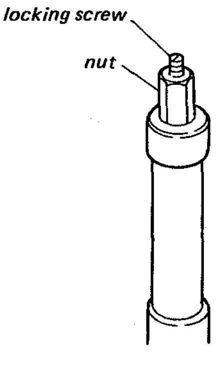
Spec.:

< head-to-tape contact >

$\frac{B}{A} \geqq 0.70$ $\frac{C}{A} \geqq 0.70$

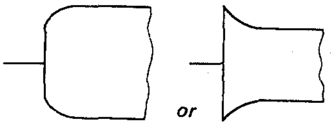
< fluctuation of amplitude >

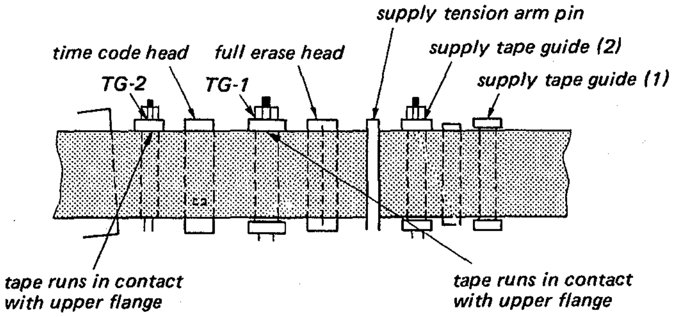
$\frac{D}{A} \geqq 0.9$



(4) When the RF waveform is not flat as shown in the figure 1, adjust the height of TG-3 and TG-4 so that the RF waveform is flat. When the RF waveform is not flat as shown in the figure 2, adjust the height of TG-3 and TG-4 so that the RF waveform is flat. If this adjustment is insufficient, adjust the zenith of the audio/CTL head within the allowable range, then readjust the height of TG-3 and TG-4.

< drum entrance side >




supply tension arm pin
time code head
full erase head
supply tape guide (2)
supply tape guide (1)
TG-2
TG-1
tape runs in contact with upper flange
tape runs in contact with upper flange

< drum exit side >

Fig. 1

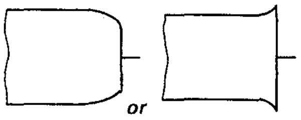
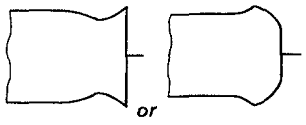
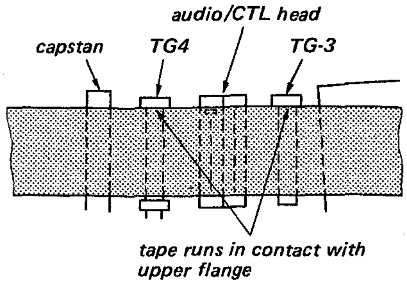
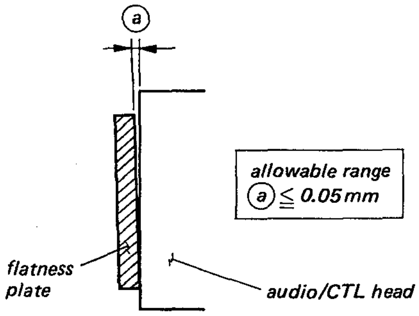


Fig. 2




audio/CTL head
capstan
TG4
TG-3
tape runs in contact with upper flange


ⓐ
allowable range
ⓐ ≦ 0.05 mm
flatness plate
audio/CTL head

9-4. ERASE HEAD ZENITH ADJUSTMENT

Tool: Flatness plate

Check procedure:

(1) Check that the clearance between the erase head and the flatness plate meets the required specification when the flatness plate is set on the erase head and TG1.

Adjustment procedure:

When the clearance is out of spec. at the top of the erase head.

(1) Turn the adjusting screw counter-clockwise.

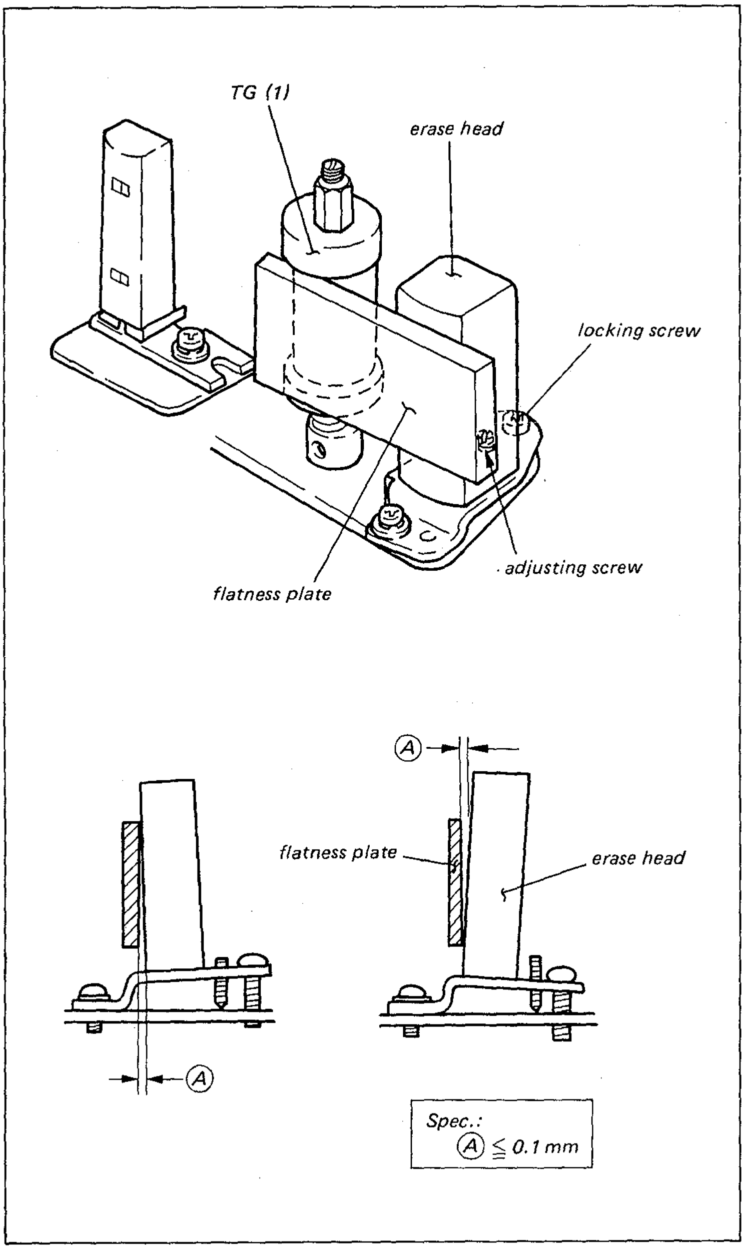
(2) Tighten the locking screw and check zenith again.

When the clearance is out of spec. at the bottom of the erase head.

(3) Loosen the locking screw.

(4) Turn the adjusting screw clockwise.

(5) Tighten the locking screw and check zenith again.


TG (1)
erase head
locking screw
adjusting screw
flatness plate
Ⓐ
flatness plate
erase head
Ⓐ
Spec.:
Ⓐ ≦ 0.1 mm

9-5. TIME CODE HEAD ADJUSTMENT

9-5-1. Time Code Head Tape-to-Head Contact Adjustment

Tool: Alignment tape

Digital voltmeter or oscilloscope

Preparation:

(1) Connect the digital voltmeter or oscilloscope to the TIME CODE OUT terminal.

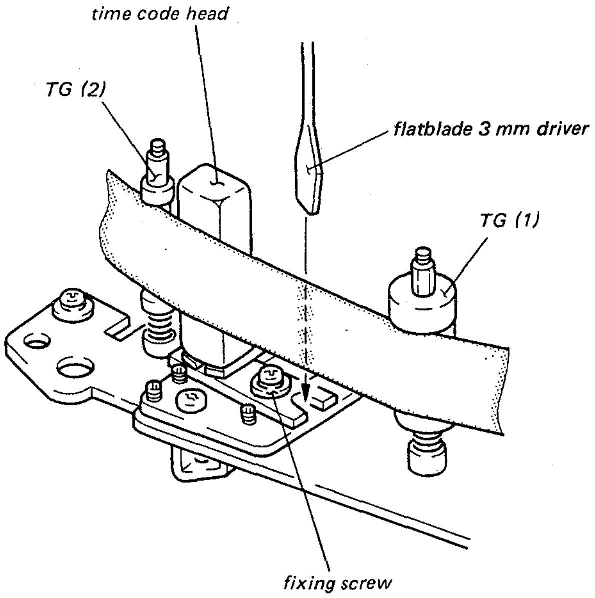
(2) Playback the color-bar section of the alignment tape. (Time code output level is about -30dB)

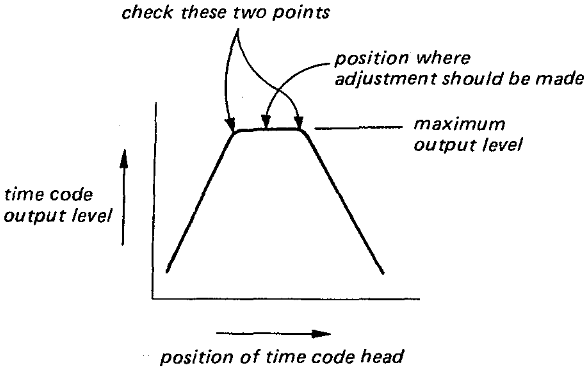
Adjustment procedure:

(1) Loosen the fixing screw of time code head about 1/4 turn.

(2) Insert a flatblade 3mm screwdriver into the hole as shown in the figure. Adjust the time code head block for maximum output (see figure).

(3) Tighten the time code head block fixing screw.





9-5-2. Time Code Head Height Adjustment

Tool: Alignment tape

Digital voltmeter or oscilloscope

Preparation:

(1) Connect the digital voltmeter or oscilloscope to the TIME CODE OUT terminal.

(2) Playback the color-bar section of the alignment tape.

Check procedure:

(1) Check that the level increase is less than 0.5dB when pressing down at A and pushing up at B.

Adjustment procedure:

Level increase is more than 0.5dB when pressing down at A.

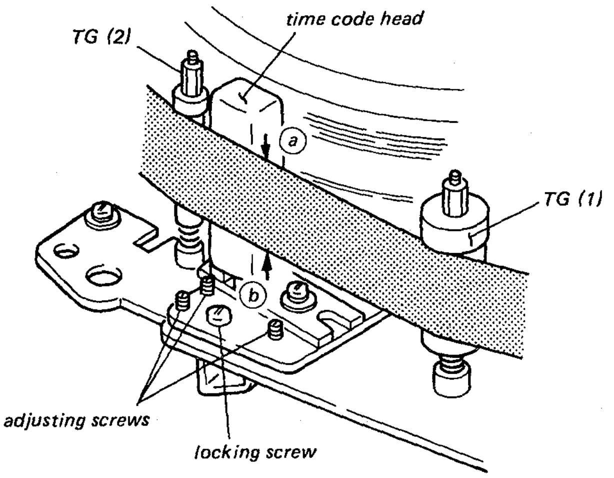
(1) Loosen the locking screw 1/2 to 1/4 turn and turn the 3 adjusting screws exactly equal amounts clockwise.

(2) Tighten the locking screw and check the height again.

Level increase is more than 0.5dB when pushing up at B.

(3) Turn the 3 adjusting screws exactly equal amounts counterclockwise.

(4) Tighten the locking screw and check the height again.



Spec.:
Level increase is less than 0.5dB when pressing down at ⓐ and pushing up ⓑ.

9-5-3. Time Code Head Zenith Adjustment

Tool: Flatness plate

Check procedure:

(1) Check that the clearance between the time code head and the flatness plate meets the required specificaiton, when the flatness plat is set against the time code head and TG-2.

Adjustment procedure:

When the clearance is out of spec. at the top of the time code head.

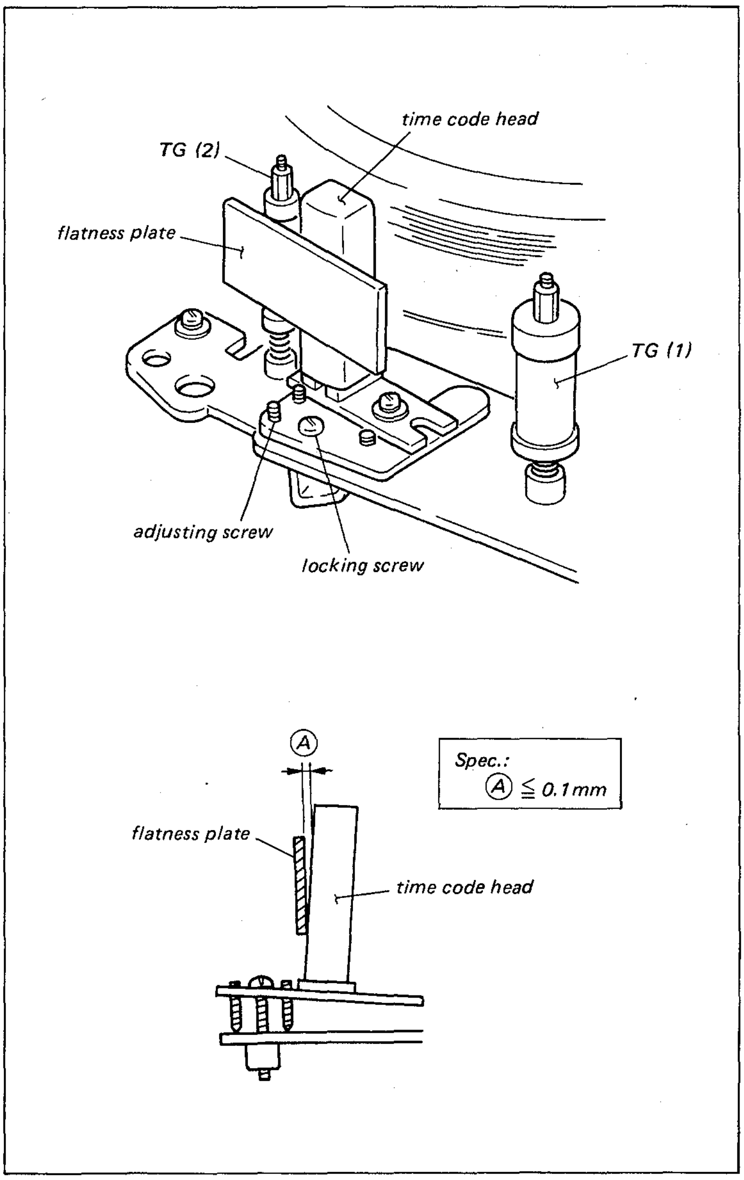
(1) Turn the adjusting screw counter-clockwise.

(2) Tighten the locking screw and check zenith again.

When the clearance is out of spec. at the bottom of the time code head.

(3) Loosen the locking screw 1/4 to 1/2 turn and turn the adjusting screw clockwise.

(4) Tighten the locking screw and check zenith again.


time code head
TG (2)
flatness plate
TG (1)
adjusting screw
locking screw
Ⓐ
Spec.:
Ⓐ ≦ 0.1mm
flatness plate
time code head

9-5-4. Time Code Head Position Adjustment

Tool: Alignment tape

Oscilloscope

Extension board

Preparation:

(1) Connect the oscilloscope as follows:

CH-1 : TIME CODE OUT terminal

CH-2 : TP501/CF board

TRIG : TP501/CF board

(2) Playback the time code signal section of the alignment tape.

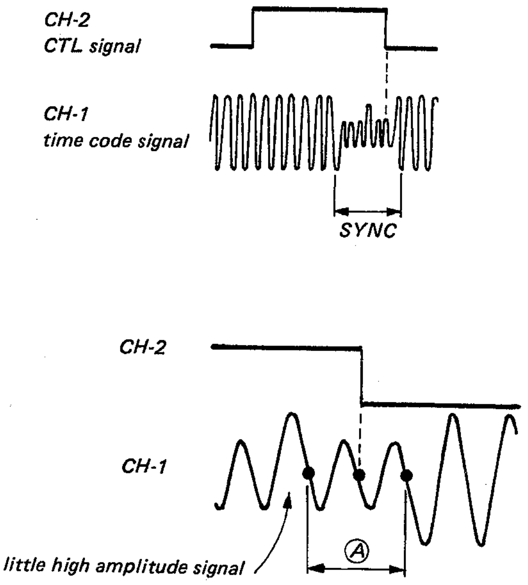
Check procedure:

(1) Check that the relative phase of CTL signal and time code signal meet the required specification.

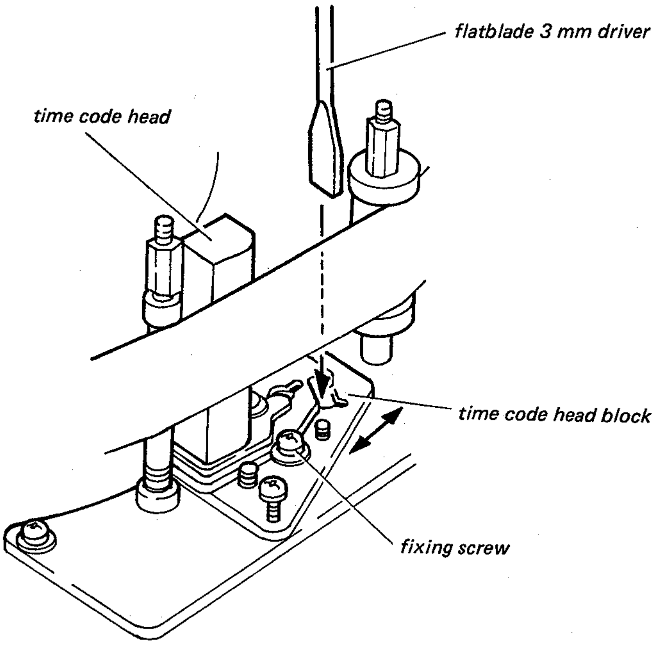
Adjustment procedure:

(1) Loosen the fixing screw.

(2) Insert a flatblade 3mm screwdriver into the notch, and move the time code head block to meet the required specification.


CH-2
CTL signal
CH-1
time code signal
SYNC
CH-2
CH-1
little high amplitude signal
Ⓐ

Spec. The falling edge is within Ⓐ period.


flatblade 3 mm driver
time code head
time code head block
fixing screw

9-6. AUDIO HEAD ADJUSTMENT

9-6-1. Audio Head Height Adjustment

Tool: Alignment tape

Digital voltmeter or oscilloscope

Preparation:

(1) Connect the digital voltmeter or oscilloscope to the AUDIO OUT CH-1 and CH-2 terminals.

(2) Playback the audio 1kHz section of the alignment tape.

Check procedure:

(1) Check that the CH-1 output level increase is less than 0.5dB when pressing down at A. If not, perform Steps (1) and (2) of the adjustment procedure.

(2) Check that the CH-2 output level increase is less than 0.5dB when pushing up at B. If not, perform Steps (3) and (4) of the adjustment procedure.

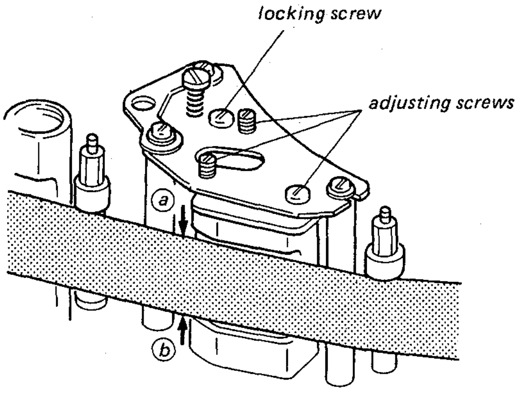
Adjustment procedure:

(1) Loosen the locking screw and turn the 3 adjusting screws exactly equal amounts counterclockwise.

(2) Tighten the locking screw and check height again.

(3) Loosen the locking screw and turn the 3 adjusting screws exactly equal amout clockwise.

(4) Tighten the locking screw and check height again.



Spec.:
- *CH-1 level increase is less than 0.5dB when pressing down at ⓐ.*
- *CH-2 level increase is less than 0.5dB when pushing up at ⓑ.*

9-6-2. Audio Head Zenith Adjustment

Tool: Flatness plate

Check procedure:

(1) Check that the clearance between the audio head and the flatness plate meets the required specification, when the flatness plate is set against the audio head and TG-3. Do not set the flatness plate against the top of TG-3.

Adjustment procedure:

When the clearance is out of spec. at the top of the audio head.

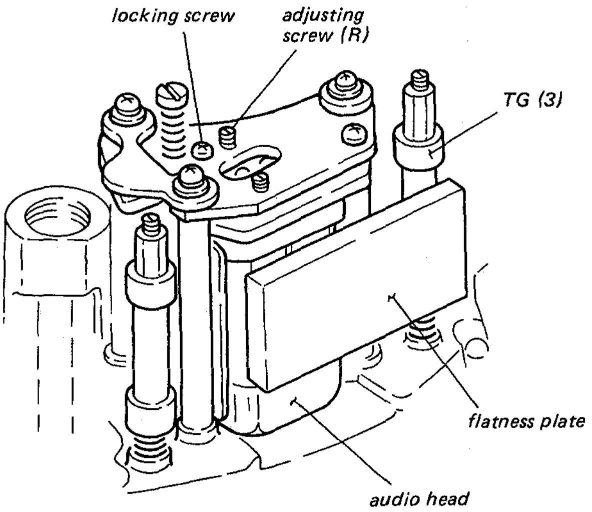
(1) Turn the adjusting screw (R) counter-clockwise.

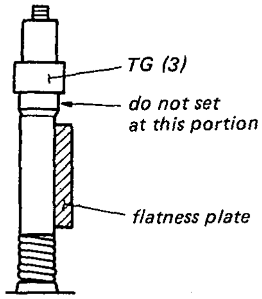
(2) Tighten the locking screw and check zenith again.

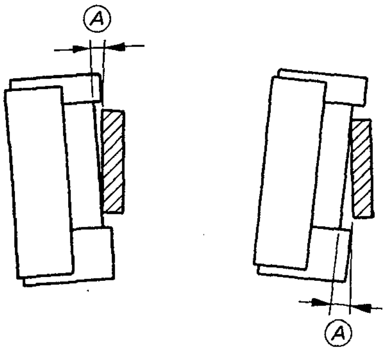
When the clearance is out of spec. at the bottom of the audio head.

(3) Loosen the locking screw 1/4 to 1/2 turn and turn adjusting screw (R) clockwise.

(4) Tighten the locking screw and check zenith again.


locking screw
adjusting screw (R)
TG (3)
flatness plate
audio head


TG (3)
do not set at this portion
flatness plate



Spec.:
Ⓐ ≦ 0.05 mm

9-6-3. Audio Head Azimuth Adjustment

Tool: Alignment tape

Digital voltmeter or oscilloscope

Preparation:

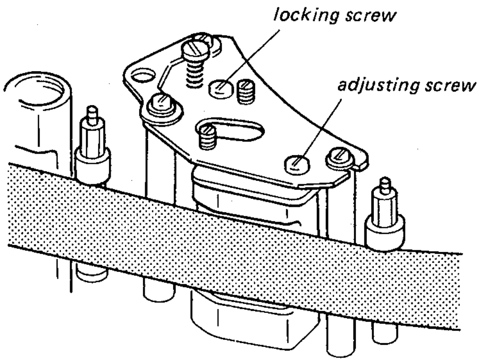
(1) Connect the digital voltmeter or oscilloscope to the AUDIO OUT CH-1 or CH-2 terminal.

(2) Playback the audio 10kHz section of the alignment tape.

Adjustment procedure:

(1) Loosen the locking screw and adjust, for maximum output level by turning the adjusting screw.

(2) Tighten the locking screw.


locking screw
adjusting screw

9-6-4. Audio Head Phase Adjustment

Tool: Alignment tape

Oscilloscope

Preparation:

(1) Connect the horizontal and vertical terminals of the oscilloscope to the AUDIO OUT CH-1 and CH-2 terminals.

(2) Playback the audio 1kHz section of the alignment tape.

(3) Adjust the scope for horizontal and vertical amplitudes of 6cm of a lissajous waveshape.

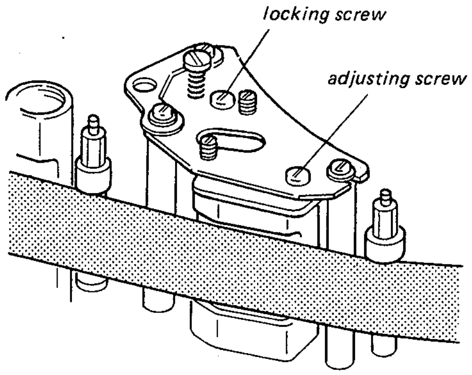
Check procedure:

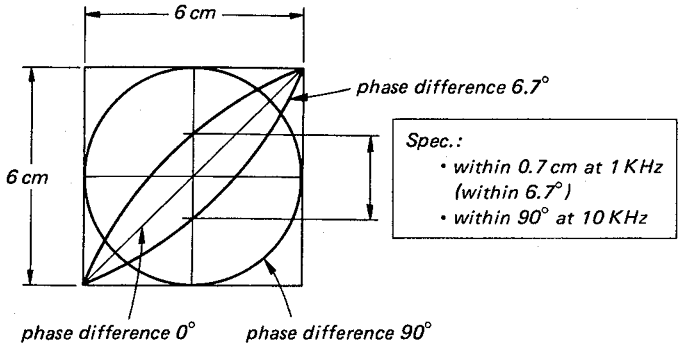
(1) Check that the vertical amplitude at the center in the horizontal direction is within specification at 1kHz and 10kHz.

Adjustment procedure:

(1) Loosen the locking screw 1/4 to 1/2 turn and adjust the phase by turning the adjusting screw.

(2) Tighten the locking screw and confirm phase again.


locking screw
adjusting screw


6 cm
6 cm
phase difference 6.7°
phase difference 0°
phase difference 90°

Spec.:
- *within 0.7 cm at 1 KHz (within 6.7°)*
- *within 90° at 10 KHz*

9-7. AUDIO/CTL HEAD POSITIOH ADJUSTENT

Tool: Alignment tape

Oscilloscope

Preparation:

(1) Connect the oscilloscope to TP29/YD-17 board, and externally trigger from TP3/YD-17 board.

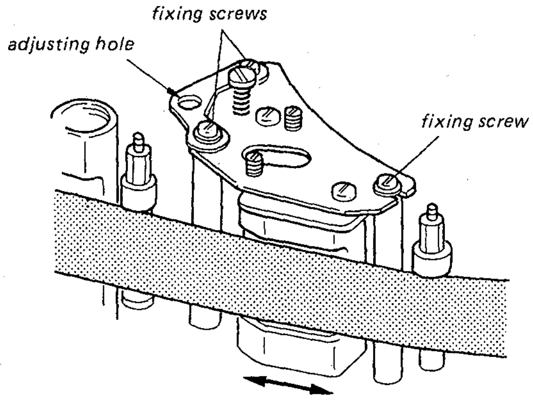
(2) Playback the color-bar section of the alignment tape.

Check procedure:

(1) Check that the RF waveform has maximum amplitude when the TRACKING control knob is set in the detent position.

Adjustment procedure:

(1) Adjust the position of the audio/CTL head in the direction of the arrow.



9-8. VIDEO HEAD DIHEDRAL ADJUSTMENT

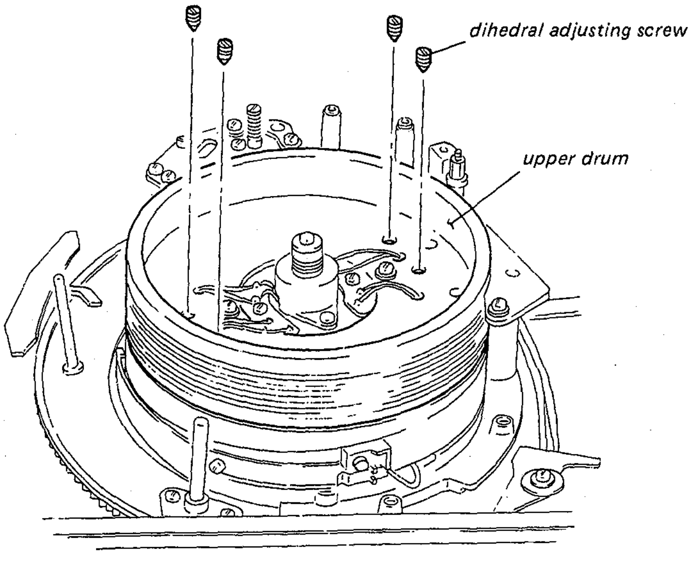
Tool: Dihedral adjusting screw
Alignment tape

Video monitor

Check procedure:

(1) Playback the monoscope section of the alignment tape.

(2) Check if one vertical line beneath the switching point on the monitor screen looks divided into two separated lines. (If one vertical line looks line two separate lines, dihedral adjustment is necessary. When one line is not divided into two lines, adjustment is not necessary.)



Adjustment procedure:

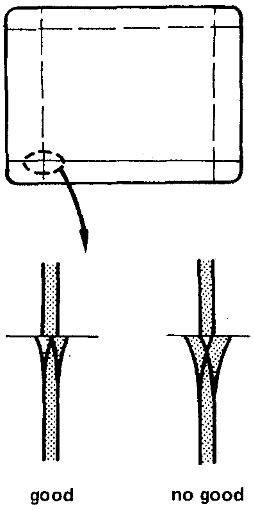
(1) Gently screw the four dihedral adjusting screws into the upper drum.

(2) Turn either of the two screws adjacent to the video head with white and yellow leads until some resistance is felt.

(3) If this screw is turned further, the video head is moved and the dihedral is adjusted. Therefore, turn this screw an additional quarter turn.

(4) Check for dihedral distortion. If the distortion has become worse, turn this screw back one turn and tighten the other screw a quarter turn. Check again for dihedral distortion and continue in this way until dihedral error is eliminated.

(5) When the adjustment is completed, remove the four dihedral adjusting screws. After removal, playback the alignment tape and check dihedral again as error sometimes reappears after the screws are removed.



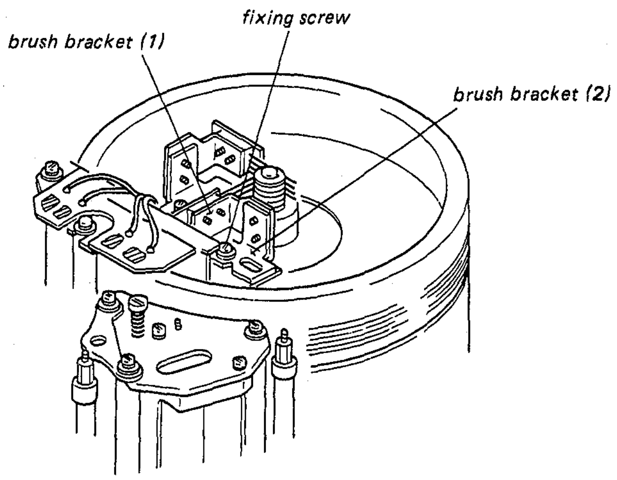
9-9. SLIP-RING AND BRUSH POSITION ADJUSTMENT

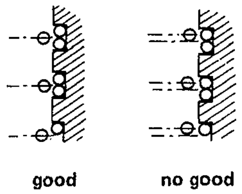
Adjustment procedure:

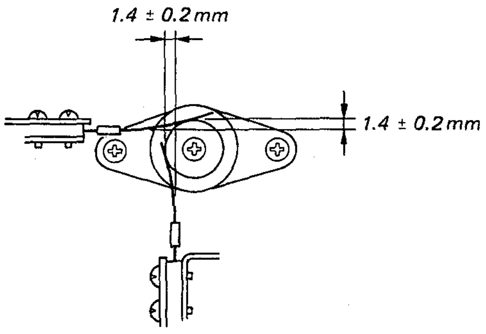
(1) Loosen the fixing screw of brush bracket (2) and disengage the brush from the slip-ring. Tighten the fixing screw.

(2) Loosen the fixing screw of brush bracket (1). Adjust the height of brush bracket (1) to meet the specification.

(3) Loosen the fixing screw of brush bracket (2) again. Adjust the position of the brush to meet the specificaiton.


fixing screw
brush bracket (1)
brush bracket (2)


good
no good


1.4 ± 0.2mm
1.4 ± 0.2mm

SONY

VIDEOCASSETTE RECORDER

BVU-850P

SUPPLEMENT-2

Applicable Manual; 1st Edition (3-688-808-01)
2nd Edition (3-688-808-11)
2nd Edition Revised 1 (3-688-808-12)

CONTENTS; ELECTRICAL ALIGNMENT

Please file this SUPPLEMENT-2 to your manual, and replace the TABLE OF CONTENTS with attached one.

Professional U-matic SP
OPERATION AND MAINTENANCE MANUAL
Volume 1

BVU-850P(AEP)
9-966-851-03

Sony Corporation

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1985.10 09

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SECTION 10

POWER SUPPLY/SYSTEM CONTROL ALIGNMENT

[Equipment Required]

- Oscilloscope
- Frequency Counter
- DC Voltmeter
- Alignment Tape: RR5-1SD (Part No. 8-960-036-80) –SP tape –

TIME	VIDEO	AUDIO	TIME CODE
5	color bars		———
3	Gated sweep (B/W)	1 kHz, 0 dB	———
3	Gated sweep (color)	10 kHz, –10 dB	
3	Pulse & bar (MOD 10T and inverted 2T)	1 kHz, –20 dB (NR: OFF) 40 Hz, –20 dB (NR: OFF) 7 kHz, –20 dB (NR: OFF) 10 kHz, –20 dB (NR: OFF) 15 kHz, –20 dB (NR: OFF)	———
3	Monoscope (color)	1 kHz, –20 dB (NR: ON) 15 kHz, –20 dB (NR: ON)	———
3	Pseudo color bars	———	EBU TIME CODE

10-1. SWITCHING REGULATOR ADJUSTMENT

Note: If the Switching regulator adjustment is attempted, realignment of the video system and servo system are required.

10-1-1. Excess Voltage Detector Level Adjustment

machine conditions for adjustment	spec.	adjustment
• POWER sw: OFF. • Temporarilly set the RV2/ PW-79 to fully CCW (component side view). • POWER sw: ON.	TP305/PD-14 17.0V ± 0.1 Vdc Caution: Care should be taken for adjustment of RV2 as it may damage many components if the voltage at TP305/PD-14 board exceeds 17.1V.	⊘RV2/PW-79

10-1-2. Output Voltage Adjustment

machine conditions for adjustment	spec.	adjustment
• POWER sw: OFF. • Temporarilly set the RV1/ PW-79 to fully CCW (component side view). • POWER sw: ON. • STOP mode (with tape threaded).	TP305/PD-14 15.5V ± 0.1 Vdc	⊘RV1/PW-79

10-2. REG +5V ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• STOP mode.	TP304/PD-14 5.33V ± 0.01 Vdc	⊘RV2/PD-14

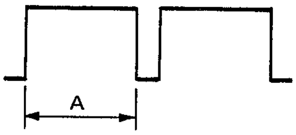
10-3. REG +12V ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• STOP mode.	TP301/PD-14 12.0V ± 0.1 Vdc	⊘RV1/PD-14

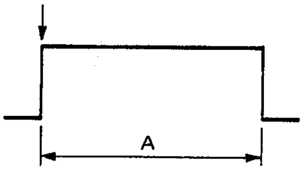
10-4. TAPE BEGINNING/END DETECTOR ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Without cassette. • STOP mode.	TP1/RE-3 6.0V ± 0.2 Vdc	⊘RV1/RE-3

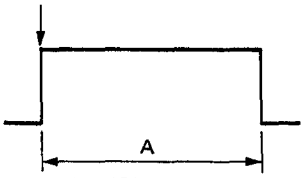
10-5. SEARCH x 10 MODE DETECTOR ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• FWD x 5 mode. (Frequency at TP11/SV-57 approx. 2230 Hz).	IC41-10/SY-36  A = 18.5 µs ± 0.3 µs	⊘RV2/SY-36 TRIG: INT

10-6. PINCH ROLLER PRESSURE TIMING ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• REMOTE/LOCAL sw: REMOTE • REMOTE 1/2 sw: 2 (36P) • REMOTE SEARCH STILL mode → REMOTE SEARCH FWD mode (Use the BVE-500A or BVR-510A).	IC50-6/SY-36  A = 180 ms ± 3 ms	⊘RV1/SY-36 TRIG: INT

10-7. PINCH ROLLER PRESSING TIMING ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• STOP mode → PLAY mode.	IC50-10/SY-36  A = 180 ms ± 3 ms	⊘RV3/SY-36 TRIG: INT

SECTION 11
SERVO SYSTEM ALIGNMENT

[Equipment Required]

- Dual Trace Oscilloscope.
- Frequency Counter.
- Audio Oscillator.
- DC Voltmeter.
- Blank Tape.
- Alignment Tape: RR5-1SD (Part No. 8-960-036-80) –SP tape –

TIME	VIDEO	AUDIO	TIME CODE
5	color bars		——
3	Gated sweep (B/W)	1 kHz, 0 dB	——
3	Gated sweep (color)	10 kHz, –10 dB	——
3	Pulse & bar (MOD 10T and inverted 2T)	1 kHz, –20 dB (NR: OFF) 40 Hz, –20 dB (NR: OFF) 7 kHz, –20 dB (NR: OFF) 10 kHz, –20 dB (NR: OFF) 15 kHz, –20 dB (NR: OFF)	——
3	Monoscope (color)	1 kHz, –20 dB (NR: ON) 15 kHz, –20 dB (NR: ON)	——
3	Pseudo color bars	——	EBU TIME CODE

- The REEL SERVO ADJUSTMENT are refer to section 8. BACK TENTION AND TORQUE ALIGNMENT.

RV2/RE-3	8-7.	TAKE-UP CURRENT SENSITIVE ADJUSTMENT
RV3/RE-3	8-8.	SUPPLY CURRENT SENSITIVE ADJUSTMENT
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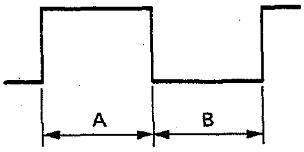
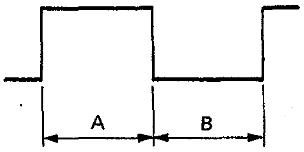
RV503/RS-4	8-6-1.	SUPPLY TENSION DETECTOR 0 GRAM POINT ADJUSTMENT
RV502/RS-4	8-6-4.	TAKE-UP TENSION DETECTOR 100 GRAM POINT ADJUSTMENT
RV504/RS-4	8-6-3.	SUPPLY TENSION DETECTOR 100 GRAM POINT ADJUSTMENT

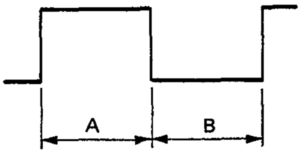
11-1. CAPSTAN FG BIAS ADJUSTMENT

machine conditions for adjustment	**spec.**	**adjustment**
• Extend SV-52 board by extention board EX-7. • POWER ON. • STOP mode.	TP-12/SV-52  DUTY = 50% ± 2% = (A = B ± 2%)	⊘RV17/SV-52 TRIG: INT

11-2. CAPSTAN FG COMPENSATOR ADJUSTMENT

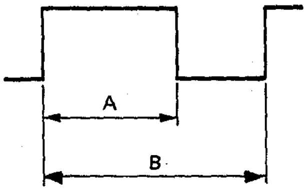
machine conditions for adjustment	**spec.**	**adjustment**
• Extend SV-52 board by extention board EX-7. • POWER ON. • STOP mode.	TP11/SV-52  DUTY = 50% ± 2% = (A = B ± 2%)	⊘RV14/SV-52 TRIG: INT

11-3. DRUM FREE SPEED ADJUSTMENT

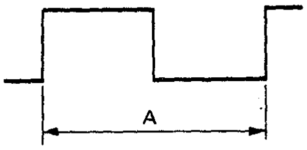
machine conditions for adjustment	**spec.**	**adjustment**
• Extend SV-52 board by extention board EX-7. • POWER ON. • STOP mode.	TP5/SV-52  DUTY = 50% ± 2% = (A = B ± 2%)	⊘RV4/SV-52 TRIG: INT

NOTE: After completing this adjustment, perform the section 11-13. Drum Lock Phase Adjustment.

11-4. CAPSTAN FREE SPEED ADJUSTMENT

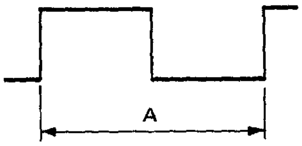
machine conditions for adjustment	spec.	adjustment
• Extend SV-52 board by extension board EX-7. • POWER ON. • STOP mode.	TP7/SV-52  A = B x (60% ± 2%)	⊘RV11/SV-52 TRIG: INT

11-5. SEARCH x 5 ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend SV-52 board by extension board EX-7. • POWER ON. • FWD SEARCH x 5 mode.	TP12/SV-52  A = 0.44 ms ± 0.01 ms	⊘RV3/SV-52 TRIG: INT

NOTE: After completing this adjustment, perform the section Search x 1 Adjustment.

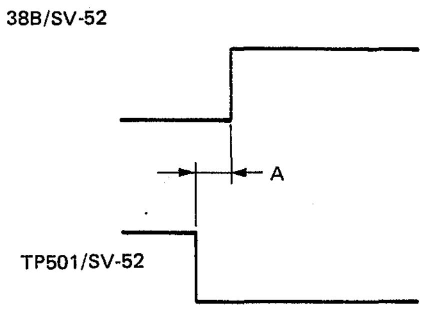
11-6. SEARCH x 1/30 ADJUSTMENT

machine condition for adjustment	spec.	adjustment
• Extend SV-52 board by extension board EX-7. • POWER ON. • FWD SEARCH x 1/30 mode.	TP12/SV-52  A = 67 ms ± 10 ms	⊘RV15/SV-52 TRIG: INT

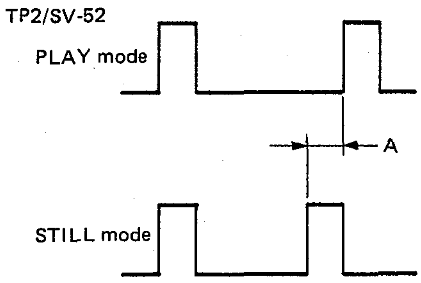
11-7. SEARCH x 1 ADJUSTMENT

machine conditions for adjustment	spec	adjustment
• Extend SV-52 board by extention board EX-7. • POWER ON. • FWD SEARCH x1 mode. • MODE SELECT sw: TBC	TP12/SV-52 444 Hz ± 2 Hz	⊘RV3/SV-52

11-8. TRACKING CONTROL CALIBRATION ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend SV-52 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of Alignment tape. • TRACKING control: center detector (FIXED). • Oscilloscope: CHOP mode.	 A = 0 ± 0.05 ms	⊘RV1/SV-52 TRIG: 38B/SV-52

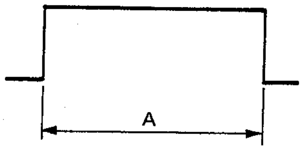
11-9. DRUM AFC LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend SV-52 board by extention board EX-7. • POWER ON. • PLAY mode and STILL mode.	 A = 0 ± 0.05 μs	⊘RV13/SV-52 TRIG: INT

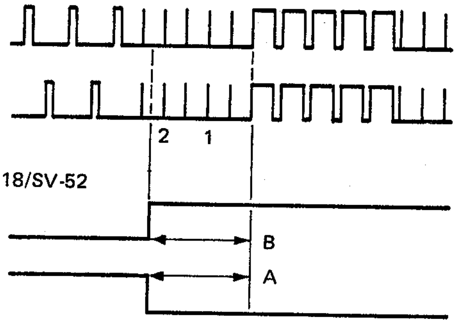
11-10. DRUM AFC BIAS ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend SV-52 board by extention board EX-7. • POWER ON. •STILL mode and PLAY mode.	TP9/SV-52 DC Level in PAUSE mode = REF DC Level in PLAY mode = adjust to REF	⊘RV12/SV-52

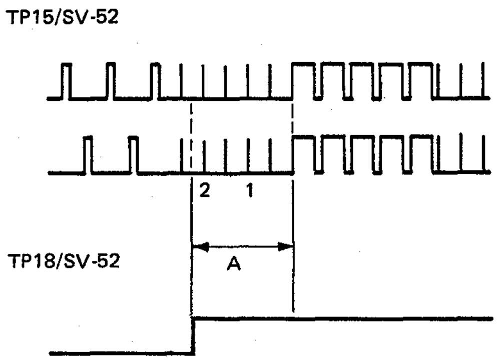
11-11. CAPSTAN SPEED DETECTOR ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend SV-52 board by extention board EX-7. • POWER ON. • FWD SEARCH x1/30 mode.	IC28-6/SV-52  A = 0.67 ms ± 0.01 ms	⊘RV2/SV-52 TRIG: INT

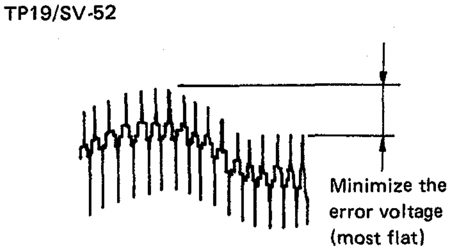
11-12. SWITCHING POSITION ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend SV-52 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of Alignment tape. • Short TP3 – E2/SV-52. • Short TP2 – E2/SV-52. • TRACKING control: center detent (FIXED). • Oscilloscope: CHOP mode. • After adjustment is complited, remove the shorting clip.	5A/SV-52 TP18/SV-52  $A = B = 2.25H^{+0.75}_{-1.75}H$	CH-A adj. ⊘RV8/SV-52 CH-B adj. ⊘RV6/SV-52 TRIG: 5A/SV-52

11-13. DRUM LOCK PHASE ADJUSTMENT

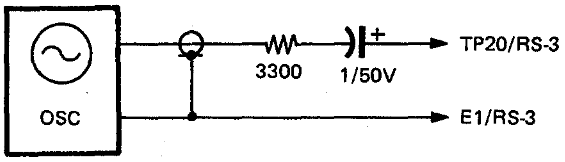
machine conditions for adjustment	spec.	adjustment
• Extend SV-52 board by extention board EX-7. • POWER ON. • Short TP3 – E2/SV-52. • Short TP2 – E2/SV-52. • Short TP100 – E2/SV-52. • VIDEO IN connector: Color bar. • REC mode. • Oscilloscope: CHOP mode. • After adjustment is complited, remote the shorting clip.	 A = 2.25H ± 0.15H	⊘RV4/SV-52 TRIG: TP15/SV-52

11-14. PICTURE SPLITTING COMPENSATOR ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend SV-52 board by extention board EX-7. • POWER ON. • Playing back the monoscope segment of Alignment tape.		Phase adj. ⊘RV9/SV-52 Level adj. ⊘RV10/SV-52 TRIG: TP17/SV-52

NOTE: This adjustment is not necessary in normal service operation except when the variable resistor, upper drum assy or drum assy is replaced.

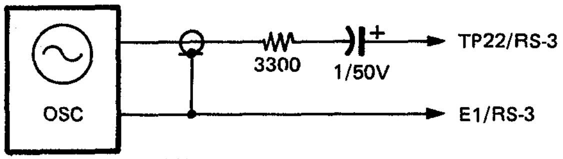
11-15. TAKE UP REEL MOTOR SPEED ADJUSTMENT



3.84 kHz ± 0.04 kHz
Sin wave, 1V to 2 Vp-p

machine conditions for adjustment	spec.	adjustment
• Cassette up mode. • Check the DC Level at TP24/RS-3 is +12V ± 0.2V. • Connector the Oscillator to TP20/RS-3.	TP4/RS-3 5V ± 0.05 Vdc	⊘RV1/RS-3

11-16. SUPPLY REEL MOTOR SPEED ADJUSTMENT



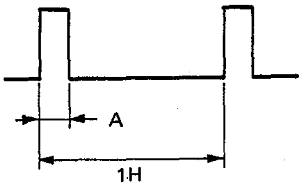
3.84 kHz ± 0.04 kHz
Sin wave, 1V to 2 Vp-p

machine conditions for adjustment	spec.	adjustment
• Cassette up mode. • Check the DC Level at TP24/RS-3 is +12V ± 0.2V. • Connect the Oscillator to TP22/RS-3.	TP10/RS-3 5V ± 0.05 Vdc	⊘RV2/RS-3

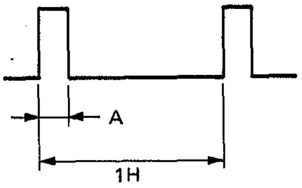
11-17. CAPSTAN SYNCHRONIZE ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Playing back the color bar segment of Alignment tape. • Connect between 3A/SV-52 and CN1-39 with resistor. 3A —WW— CN1-39 10K	TP12/SV-52 470 Hz ± 1 Hz	⊘RV16/SV-52

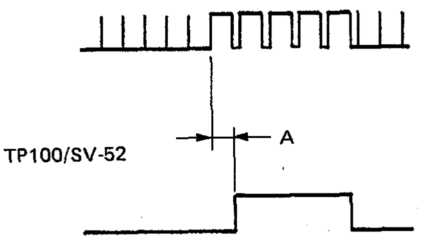
11-18. REF 135° BURST PULSE ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend SV-52 (CF-9) board by extention board EX-7. • POWER ON • VIDEO IN connector: color bar. • EE mode.	TP702/CF-9  $A = 10\,\mu s \pm 5\,\mu s$	⊘ RV502/CF-9 TRIG: INT

11-19. PB 135° BURST PULSE ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend SV-52 (CF-9) board by extention board EX-7. • POWER ON. • VIDEO IN connector: color bar. • Playing back the color bar segment of Alignment tape.	TP701/CF-9  $A = 15\,\mu s\,^{+5}_{-10}\,\mu s$	⊘ RV501/CF-9 TRIG: INT

11-20. ASSEMBLE COMPENSATOR ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend SV-52 board by extention board EX-7. • POWER ON. • VIDEO IN connector: color bar. • REC mode. • Oscilloscope: CHOP mode.	TP15/SV-52  A = 0	⊘ RV100/SV-52 TRIG: TP15/SV-52

SECTION 12
AUDIO SYSTEM ALIGNMENT

[Equipment Required]

- Dual Trace Oscilloscope.
- Frequency Counter.
- Audio Oscillator.
- VTVM.
- Audio Attenutor.
- Blank Tape: KCA, KCS and KSP. (When adjusting, use KCA and KCS unless otherwise specifically indicated.)
- Alignment Tape: RR5-1SD (Part No. 8-960-036-80) –SP tape –

TIME	VIDEO	AUDIO	TIME CODE
5	color bars		———
3	Gated sweep (B/W)	1 kHz, 0 dB	———
3	Gated sweep (color)	10 kHz, –10 dB	———
3	Pulse & bar (MOD 10T and inverted 2T)	1 kHz, –20 dB (NR: OFF) 40 Hz, –20 dB (NR: OFF) 7 kHz, –20 dB (NR: OFF) 10 kHz, –20 dB (NR: OFF) 15 kHz, –20 dB (NR: OFF)	———
3	Monoscope (color)	1 kHz, –20 dB (NR: ON) 15 kHz, –20 dB (NR: ON)	———
3	Pseudo color bars	———	EBU TIME CODE

[Switch/VR Setting]

FRONT PANEL

• AUDIO MONITOR sw	MIX
• TRACKING VR	FIXED
• AUDIO LIMITER sw	OFF
• MIXING SELECT sw	OFF
• MODE SELECT sw	NORMAL
• INPUT SELECT sw	LINE
• REMOTE/LOCAL SELECT sw	LOCAL
• REMOTE-1/-2	2 (36P)
• AUDIO LEVEL PB VR	Refer to Sec 12-8
• AUDIO LEVEL REC VR	Refer to Sec 12-1
• PB, PB/EE SELECT sw	PB•EE
• DOLBY NR sw (behind panel)	OFF

REAR PANEL

• AUDIO IN LEVEL sw	LOW
• 600Ω termination sw	ON

Do not move these switches and volumes unless otherwise specified.

12-1. AUDIO REC LEVEL SETTING

machine conditions for adjustment	spec.	adjustment
• Extend AU-62 board by extention board EX-7. • AUDIO IN connector: 1 kHz, –60 dBm. • EE mode.	TP103/AU-62: CH-1 TP203/AU-62: CH-2 –10 dBs ± 0.2 dBs	⊘REC LEVEL VR (Front panel)

NOTE: The AUDIO REC LEVEL control should not be touch until reset of Sec. 12 Audio System Alignment completed.

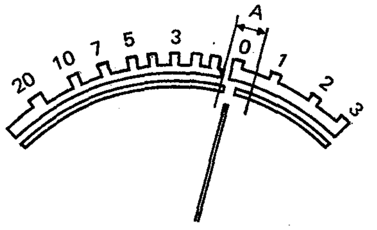
12-2. AUDIO OUTPUT LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• AUDIO IN connector: 1 kHz, –60 dBm. • EE mode	AUDIO OUT connector (terminated by 600 ohm) +4 dBm ± 0.5 dBm (CH-1 level = CH-2 level)	⊘RV1/AO-3 (CH-1) ⊘RV2/AO-3 (CH-2)

12-3. AUDIO MONITOR OUTPUT LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• AUDIO IN connector: 1 kHz, –60 dBm. • EE mode. • AUDIO MONITOR sw: CH-1	AUTIO OUT connector (terminated by 600 ohm) +4 dBm ± 0.5 dBm	⊘RV3/AO-3

12-4. AUDIO LEVEL METER ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• AUDIO IN connector:1 kHz, –60 dBm. • EE mode.	AUDIO LEVEL meter  A = 0 dBs ± 0.5 dBs	⊘RV105/AU-62 (CH-1) ⊘RV205/AU-62 (CH-2)

12-5. LIMITER LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend AU-62 board by extention board EX-7. • AUDIO IN connector: 1 kHz, –30 dB. • EE mode. • LIMITER sw: ON	AUDIO OUT connector (terminated by 600 ohm) +7 dBm ± 0.5 dBm (CH-1 level = CH-2 level)	⊘RV104/AU-62 (CH-1) ⊘RV204/AU-62 (CH-2)

12-6. PB FREQUENCY RESPONSE ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend AU-63 board by extention board EX-7. • Playing back the audio 1 kHz, 7 kHz, and 10 kHz segment of Alignment tape.	AUDIO OUT connector (terminated by 600 ohm) 1 kHz Level = Ref. Level 7 kHz Level = (Ref. Level) ± 0.2 dB 15 kHz Level = (Ref. Level) ± 0.2 dB If specification in 7 kHz, 15 kHz are not satisfied, switch the S1 and S2/AU-63 to ON/OFF. When PB level is lower than spec. CH-1: ON/S1 CH-2: ON/S2 When PB level is higher than spec. CH-1: OFF/S1 CH-2: OFF/S2	3 kHz portion adj. ⊘RV103/AU-63 (CH-1) ⊘RV203/AU-63 (CH-2) 7 kHz portion adj. ⊘RV106/AU-63 (CH-1) ⊘RV206/AU-63 (CH-2) 15 kHz portion adj. ⊘RV104/AU-63 (CH-1) ⊘RV204/AU-63 (CH-2)
	Repeat the sequence of checks or adjustment at 1 kHz, 7 kHz and 15 kHz until specifications are satisfied at a same time. If not to meet the specifications by turning on S1/S2-(1), turn on S1/S2-(2) with (1). If not, turn on -(3), -(4) in order	

12-7. PB OUTPUT LEVEL ADJUSTMENT

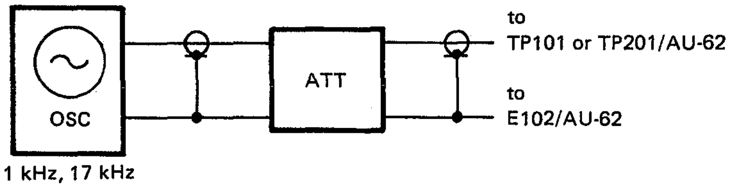
machine conditions for adjustment	spec.	adjustment
• Extend AU-62 board by extention board EX-7. • Playing back the audio 1 kHz segment of Alignment tape.	TP103/AU-62; CH-1 TP203/AU-62; CH-2 –10 dBs ± 0.2 dBs	⊘RV105/AU-63 (CH-1) ⊘RV205/AU-63 (CH-2)

12-8. AUDIO PB LEVEL SETTING

machine conditions for adjustment	spec.	adjustment
• Playing back the audio 1 kHz segment of Alignment tape.	AUDIO OUT connector (terminated by 600 ohm) +4 dBm ± 0.3 dBm	⊘PB LEVEL VR (Front panel)

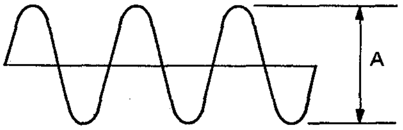
NOTE: The AUDIO PB LEVEL control should not be touch unitil reset of Sec. 12 Audio System Alignment completed.

12-9. SPECTRAL SKEWING ADJUSTMENT

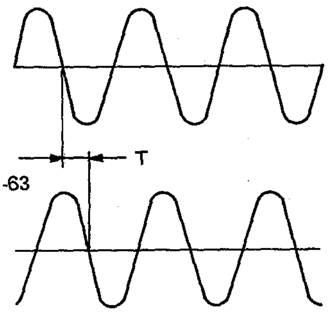


machine conditions for adjustment	spec.	adjustment
• Extend AU-62 board by extention board EX-7. • Connect the OSC and ATT. • Before Adjustment, set the level of TP101, 201 with or of ATT −10 dBs ± 0.1 dBs.	TP103/AU-62: CH-1 TP203/AU-62:. CH-2 1 kHz = −10 dBs ± 0.1 dBs 17 kHz = −18.3 dBs ± 0.1 dBs	⊘LV101/AU-62 (CH-1) ⊘LV201/AU-62 (CH-2)

12-10. PB PILOT TONE LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend AU-62 board by extention board EX-7. • AUDIO IN connector: 1 kHz, −60 dB. • Playing back the Monoscope segment of Alignment tape.	TP501/AU-63: CH-1 TP502/AU-63: CH-2  A $A = 0.5V \, {}^{+0.1}_{-0} \, Vp\text{-}p$	⊘RV504/AU-63 (CH-1) ⊘RV604/AU-63 (CH-2) TRIG: INT

12-11. PB PILOT TONE PHASE ADJUSTMENT

machine conditions for adjustment	**spec.**	**adjustment**
• Extend AU-62 board by extention board EX-7. • AUDIO IN connector: 1 kHz, –60 dB. • Playing back the Monoscope segment of Alignment tape.	TP500/AU-63  TP502/AU-63 T = (0° ± 15°) or (180° ± 15°)	⊘RV603/AU-63 TRIG: TP500/AU-63

12-12. PILOT TONE DETECT DC BALANCE ADJUSTMENT

machine conditions for adjustment	**spec.**	**adjustment**
• Extend AU-62 board by extention board EX-7. • STOP mode.	CH-1 DC Level of TP503/AU-63 = (DC Level of TP504/AU-63) ± 50 mV CH-2 DC Level of TP505/AU-63 = (DC Level of TP506/AU-63) ± 50 mV	⊘RV501/AU-63 (CH-1) ⊘RV601/AU-63 (CH-2)

12-13. DOLBY DETECT LEVEL ADJUSTMENT

machine conditions for adjustment	**spec.**	**adjustment**
• Extend AU-62 board by extention board EX-7. • Playing back the Dolby recorded tape.	TP507/AU-63 3.5V ± 0.05 Vdc	⊘RV502/AU-63

12-14. BIAS OSCILLATOR FREQUENCY ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend AU-62 board by extention board EX-7. • REC mode. • No signal input.	TP402/AU-63 71 kHz ± 1 kHz	⊘LV401/AU-63

12-15. INSERT MODE ERASE CURRENT ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
CH-1 Adj. • Extend AU-63 board by extention board EX-7. • CH-1 INSERT mode. • No signal input.	TP405/AU-63 110 mVrms ± 5 mVrms	⊘LV404/AU-63
CH-2 Adj. • Extend AU-63 board by extention board EX-7. • CH-2 INSERT mode. • No signal input.	TP406/AU-63 110 mVrms ± 5 mVrms	⊘LV405/AU-63

12-16. BIAS OSCILLATOR TUNING ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend AU-63 board by extention board EX-7. • Set the RV401, RV402/AU-63 to fully CW. • AUDIO IN connector: No signal. • Set the SP Cassette tape. • REC mode.	TP403/AU-63: CH-1 TP404/AU-63: CH-2 Maximize the Frequency Level	⊘LV402/AU-63 (CH-1) ⊘LV403/AU-63 (CH-2)

12-17. BIAS TRAP ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend AU-63 board by extention board EX-7. • Set the RV401, RV402/AU-63 to fully CW. • AUDIO IN connector: No signal. • Set the SP Cassette Tape. • REC mode.	TP102/AU-63: CH-1 TP202/AU-63: CH-2 Minimize the Bias leak.	⊘LV101/AU-63 (CH-1) ⊘LV201/AU-63 (CH-2)

12-18. INSERT BIAS TRAP ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend AU-63 board by extention board EX-7. • Set the RV401, RV402/AU-63 to fully CW. • AUDIO IN connector: No signal. • Set the blank tape of SP cassette • CH-1, CH-2 INSERT mode.	TP105/AU-63: CH-1 (CH-2 INSERT mode) TP205/AU-63: CH-2 (CH-1 INSERT mode) Minimize the Bias leak.	⊘LV102/AU-63 (CH-1) ⊘LV202/AU-63 (CH-2)

12-19. REC BIAS CURRENT LEVEL ADJUSTMENT (SP)

<table>
<tr><th>machine conditions for adjustment</th><th>spec.</th><th>adjustment</th></tr>
<tr><td>• AUDIO IN connector: 1 kHz, 7 kHz/–80 dB.
• Set the SP Cassette tape.
• Playing back the self recorded tape.</td><td>LINE OUT connector
(terminated by 600 ohm)<table><tr><td>1 kHz</td><td>7 kHz</td></tr><tr><td>0 dB
(REF)</td><td>0 dB
± 0.3 dB</td></tr></table></td><td>⊘RV401/AU-63 (CH-1)
⊘RV402/AU-63 (CH-2)
REC mode → adj.
PB mode → check</td></tr>
</table>

12-20. REC BIAS CURRENT LEVEL ADJUSTMENT (CONVENTIONAL)

<table>
<tr><th>machine conditions for adjustment</th><th>spec.</th><th>adjustment</th></tr>
<tr>
<td>• AUDIO IN connector: 1 kHz, 7 kHz/–80 dB.
• Playing back the self recorded tape.</td>
<td>LINE OUT connector (terminated by 600 ohm)
<table>
<tr><th>1 kHz</th><th>7 kHz</th></tr>
<tr><td>0 dB
(REF)</td><td>0 dB
± 0.3 dB</td></tr>
</table>
</td>
<td>⊘RV403/AU-63 (CH-1)
⊘RV404/AU-63 (CH-2)
REC mode → adj.
PB mode → check</td>
</tr>
</table>

12-21. REC FREQUENCY RESPONSE ADJUSTMENT (SP)

<table>
<tr><th>machine conditions for adjustment</th><th>spec.</th><th>adjustment</th></tr>
<tr>
<td>• AUDIO IN connector: 40 Hz to 15 kHz/–80 dB.
• Set the SP Cassette tape.
• Playing back the self recorded tape.</td>
<td colspan="2">LINE OUT connector (terminated by 600 ohm)
<table>
<tr><th>40 Hz</th><th>90 Hz</th><th>1 kHz</th><th>3 kHz</th><th>7 kHz</th><th>10 kHz</th><th>15 kHz</th></tr>
<tr><td>0 dB
± 2 dB</td><td>0 dB
± 1.5 dB</td><td>0 dB
(REF)</td><td>0 dB
± 0.5 dB</td><td>0 dB
± 0.5 dB</td><td>0 dB
± 0.5 dB</td><td>0 dB
± 0.5 dB</td></tr>
</table>
7 kHz adj. ⊘RV401/AU-63 (CH-1)
⊘RV402/AU-63 (CH-2)
10 kHz adj. ⊘LV103/AU-62 (CH-1)
⊘LV203/AU-62 (CH-2)
15 kHz adj. ⊘RV107/AU-62 (CH-1)
⊘RV207/AU-62 (CH-2)
REC mode → adj.
PB mode → check</td>
</tr>
</table>

12-22. REC FREQUENCY RESPONSE ADJUSTMENT (CONVENTIONAL)

<table>
<tr><th>machine conditions for adjustment</th><th>spec.</th><th>adjustment</th></tr>
<tr><td>• AUDIO IN connector: 40 Hz to 15 kHz/−80 dB.
• Playing back the self recorded tape.</td><td>LINE OUT connector
(terminated by 600 ohm)
<table>
<tr><td>40 Hz</td><td>90 Hz</td><td>1 kHz</td><td>3 kHz</td><td>7 kHz</td><td>10 kHz</td><td>15 kHz</td></tr>
<tr><td>0 dB
± 2 dB</td><td>0 dB
± 1.5 dB</td><td>0 dB
(REF)</td><td>0 dB
± 0.5 dB</td><td>0 dB
± 0.5 dB</td><td>0 dB
± 0.5 dB</td><td>0 dB
± 0.5 dB</td></tr>
</table>
7 kHz adj. ⊘RV401/AU-63 (CH-1)
⊘RV402/AU-63 (CH-2)
10 kHz adj. ⊘LV102/AU-62 (CH-1)
⊘LV202/AU-62 (CH-2)
15 kHz adj. ⊘RV102/AU-62 (CH-1)
⊘RV202/AU-62 (CH-2)

REC mode → adj.
PB mode → check</td><td></td></tr>
</table>

12-23. REC LEVEL ADJUSTMENT (CONVENTIONAL)

machine conditions for adjustment	spec.	adjustment
• AUDIO IN connector: 1 kHz/ −60 dB. • Set the SP Cassette tape. • Playing back the self recorded tape.	TP104/AU-62: CH-1 TP204/AU-62: CH-2 +4 dBm ± 0.3 dBm	⊘RV101/AU-62 (CH-1) ⊘RV201/AU-62 (CH-2)

12-24. REC LEVEL ADJUSTMENT (SP)

machine conditions for adjustment	spec.	adjustment
• AUDIO IN connector: 1 kHz/ −60 dB. • Playing back the self recorded tape.	TP104/AU-62: CH-1 TP204/AU-62: CH-2 +4 dBm ± 0.3 dBm	⊘RV108/AU-62 (CH-1) ⊘RV208/AU-62 (CH-2)

12-25. CH-1 INSERT CROSSTALK CANCEL ADJUSTMENT

<table>
<tr><th>machine conditions for adjustment</th><th>spec.</th><th>adjustment</th></tr>
<tr>
<td>• Extend AU-62 board by extention board EX-7.
• AUDIO CH-1 IN connector: 500 Hz, 5 kHz, 15 kHz/−60 dB.
• Playing back the no signal recorded tape.
• CH-1 INSERT mode.</td>
<td>CH-2 LINE OUT connector
(terminated by 600 ohm)
<table>
<tr><th>500 Hz</th><th>5 kHz</th><th>15 kHz</th></tr>
<tr><td>Max
−25 dB</td><td>Max
−20 dB</td><td>Max
0 dB</td></tr>
</table>
</td>
<td>500 Hz adj.
⊘ RV201/AU-63
5 kHz adj.
⊘ RV202/AU-63
15 kHz adj.
LV204/AU-63</td>
</tr>
</table>

12-26. CH-2 INSERT CROSSTALK CANCEL ADJUSTMENT

<table>
<tr><th>machine conditions for adjustment</th><th>spec.</th><th>adjustment</th></tr>
<tr>
<td>• Extend AU-62 board by extention board EX-7.
• AUDIO CH-2 IN connector: 500 Hz, 5 kHz, 15 kHz/−60 dB.
• Playing back the no signal recorded tape.
• CH-2 INSERT mode.</td>
<td>CH-1 LINE OUT connector
(terminated by 600 ohm)
<table>
<tr><th>500 Hz</th><th>5 kHz</th><th>15 kHz</th></tr>
<tr><td>Max
−25 dB</td><td>Max
−20 dB</td><td>Max
0 dB</td></tr>
</table>
</td>
<td>500 Hz adj.
⊘ RV101/AU-63
5 kHz adj.
⊘ RV102/AU-63
15 kHz adj.
⊘ LV104/AU-63</td>
</tr>
</table>

12-27. PILOT TONE REC LEVEL ADJUSTMENT

machine conditions for adjustment	spec.	adjustment
• Extend AU-63 board by extention board EX-7. • DOLBY sw: ON • AUDIO IN connector: no signal. • Playing back the self recorded tape.	TP501/AU-63: CH-1 TP502/AU-63: CH-2 0.6V ± 0.05V	⊘ RV109/AU-62 (CH-1) ⊘ RV209/AU-62 (CH-2) REC mode → adj. PB mode → check

SECTION 13
VIDEO SYSTEM ALIGNMENT

The sec 12. SERVO SYSTEM ALIGNMENT should be completed before initiating this Alignment.

[Equipment Required]

- Dual Trace Oscilloscope.
- Frequency Counter.
- Video Signal Generator.
- Video Sweep Generator.
- DC Voltmeter.
- Vectorscope.
- Blank Tape: KCA, KCS and KSP
- Alignment Tape: RR5-1SD PAL (Part No. 8-960-036-80) – SP tape –

TIME	VIDEO	AUDIO	TIME CODE
5	color bars		———
3	Gated sweep (B/W)	1 kHz, 0 dB	———
3	Gated sweep (color)	10 kHz, –10 dB	———
3	Pulse & bar (MOD 10T and inverted 2T)	1 kHz, –20 dB (NR: OFF) 40 Hz, –20 dB (NR: OFF) 7 kHz, –20 dB (NR: OFF) 10 kHz, –20 dB (NR: OFF) 15 kHz, –20 dB (NR: OFF)	———
3	Monoscope (color)	1 kHz, –20 dB (NR: ON) 15 kHz, –20 dB (NR: ON)	———
3	Pseudo color bars	———	EBU TIME CODE

RR5-2SB PAL (Parts No. 8-960-020-62) – conventional tape –

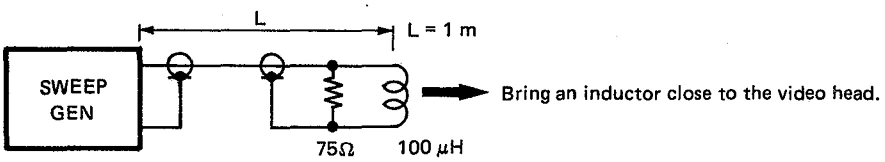
TIME	VIDEO	AUDIO	TIME CODE
5	Color bars	3 kHz, 0 dB	1 kHz
5	R-F sweep	———	———
5	Monoscope	———	———
2.5	Modulated 20T pulse	1 kHz, 0 dB	———
2.5	R-F 8 MHz	10 kHz, –10 dB	———

This tape is only used for playing back the RF sweep signal.

13-1. PLAYBACK AMPLIFIER ADJUSTMENT

13-1-1. PB RF Frequency Response Adjustment

To make this adjustment, stop the rotation of the head drum without cassette tape and to L-couple sweep signal with the video head using an inductor (approx. 100 μH).



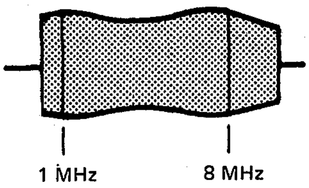
Sweep signal band width: 1 to 10 MHz

Step 1. CH-A RF frequency response adjustment

<table>
<tr><th>machine conditions for adjustment</th><th>spec.</th><th>adjustment</th></tr>
<tr><td>

- Without SV-52 board.
- Extend YD-17 board by extention board EX-7.
- Short 13B/YD-17 – E1/YD-17.
- POWER ON.
- Couple a sweep signal with the video head (CH-A).
- Adjust coupling so that the amplitude is maximize.
- After adjustment is completed, remove the shorting clip.

</td><td>TP2/YD-17



<table>
<tr><th>1 MHz</th><th>8 MHz</th></tr>
<tr><td>100%
REF</td><td>100%</td></tr>
</table>
</td><td>⊘RV4/RP-18

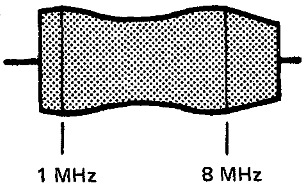
TRIG: TIRG OUT of SWEEP GEN</td></tr>
</table>

Step 2. CH-B RF frequency response adjustment

<table>
<tr><th>machine conditions for adjustment</th><th>spec.</th><th>adjustment</th></tr>
<tr><td>

- Without SV-52 board.
- Extend YD-17 board by extention board EX-7.
- Short 13B/YD-17 – 3A/YD-17.
- POWER ON.
- Couple a sweep signal with the video head (CH-B).
- Adjust coupling so that the amplitude is maximize.
- After adjustment is completed, remove the shorting clip.

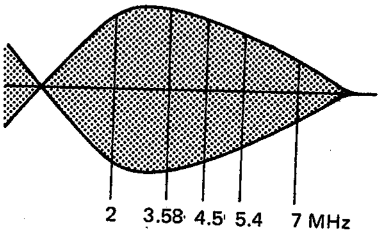
</td><td>TP1/YD-17



<table>
<tr><th>1 MHz</th><th>8 MHz</th></tr>
<tr><td>100%
REF</td><td>100%</td></tr>
</table>
</td><td>⊘RV6/RP-18

TRIG: TRIG OUT of SWEEP GEN</td></tr>
</table>

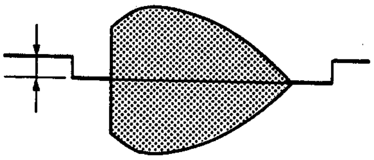
Step 3. PB RF frequency response adjustment

<table>
<tr><th>machine conditions for adjustment</th><th>spec.</th><th>adjustment</th></tr>
<tr>
<td>
• Extend YD-17 board by extention board EX-7.
• Short TP2/SV-52 – E2/SV-52.
• POWER ON.
• Playing back the RF SWEEP segment of Alignment tape.
• RV10/YD-17: mechanical center.
• TRACKING control: senter detent (FIXED).
• After adjustment is completed, remove the shorting clip.
</td>
<td>
TP6/YD-17


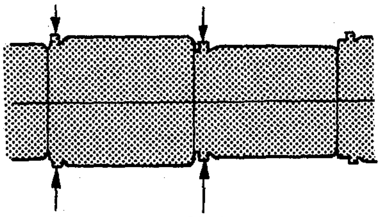
<table>
<tr><td>2 MHz</td><td>3.58</td><td>4.5</td><td>5.4</td><td>7 MHz</td></tr>
<tr><td>100%
REF</td><td>105
± 10%</td><td>98
± 10%</td><td>73
± 10%</td><td>46
± 5%</td></tr>
</table>
</td>
<td>
CH-A adj
⊘RV8/YD-17
CH-B adj
⊘RV9/YD-17
TRIG: 13B/YD-17
</td>
</tr>
</table>

NOTE: After completing this adjustment, perform the section 13-1-3 Y RF Balance adjustment.

13-1-2. RF Amplifier DC Balance Adjustment

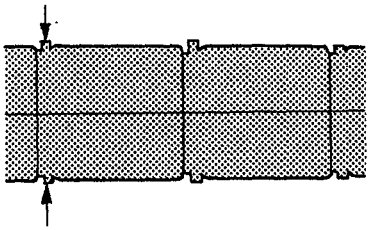
machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • Short TP2/SV-52 – E2/SV-52. • POWER ON. • Playing back the RF SWEEP segment of Alignment tape. • After adjustment is completed, remove the shorting clip.	TP2/YD-17  Equalize the DC levels of both channels.	⊘RV1/YD-17 TRIG: 13B/YD-17

13-1-3. Y RF Balance Adjustment

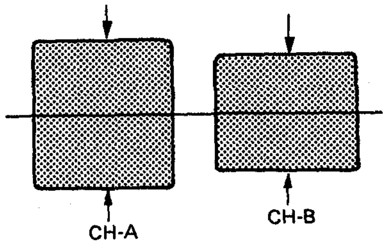
machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of Alignment tape. • TRACKING control: center detent (FIXED).	TP7/YD-17  Sync tip level of CH-A = Sync tip level of CH-B	⊘RV10/YD-17 TRIG: 13B/YD-17

NOTE: After completing this adjustment, perform the section 13-1-4. Y RF Level Adjustment.

13-1-4. Y RF Level Adjustment

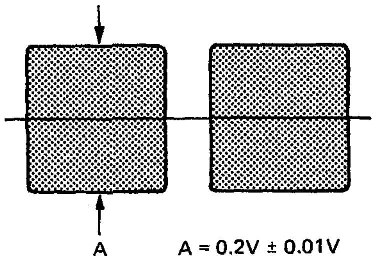
machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of Alignment tape. • TRACKING control: center detent (FIXED).	TP7/YD-17  A = 0.35V ± 0.04V	⊘RV11/YD-17 TRIG: 13B/YD-17

13-1-5. PB Chroma RF Balance Adjustment

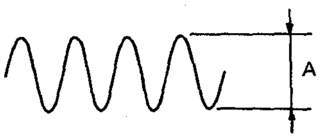
machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of Alignment tape. • TRACKING control: center detent (FIXED).	10B/YD-17  CH-A Level = CH-B Level	⊘RV5/YD-17 TRIG: 13B/YD-17

NOTE: After completing this adjustment, perform the section 13-1-6. PB Chroma RF Level Adjustment.

13-1-6. PB Chroma RF Level Adjustment

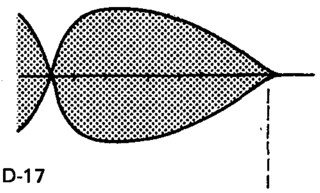
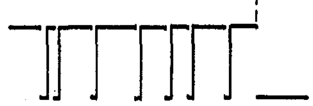
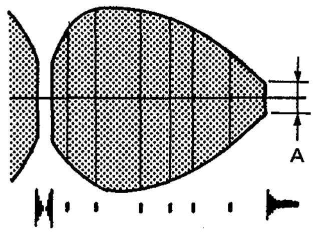
machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of SP Alignment tape. • TRACKING control: center detent (FIXED).	TP2/CD-29  A = 0.2V ± 0.01V	⊘RV25/CD-29 TRIG: TP13/CD-29

13-1-7. Audio Bias Trap Adjustment

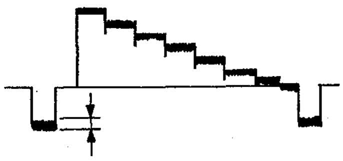
machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • Insert the CTL signal only prerecorded tape. (video signal is not recorded). • Put the AUDIO CH-1 INSERT button in Playback mode.	10B/YD-17 A = Minimize the Bias leak. 	⊘LV1/YD-17

13-2. Y DEMODULATOR ADJUSTMENT

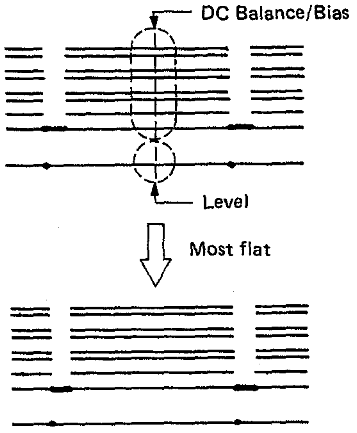
13-2-1. Dropout Compensator Sensitivity Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • Playing back the RF SWEEP segment of Alignment tape. • Oscilloscope: CHOP mode and ADD mode.	TP7/YD-17  TP104/YD-17  Oscilloscope: ADD mode  A = 35 mV ± 5 mV	⊘RV12/YD-17 TRIG: 13B/YD-17

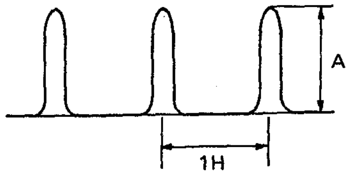
13-2-2. Carrier Balance Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of Alignment tape.	TP102/YD-17  Minimize the noise level at SYNC portion.	⊘RV13/YD-17 TRIG: INT

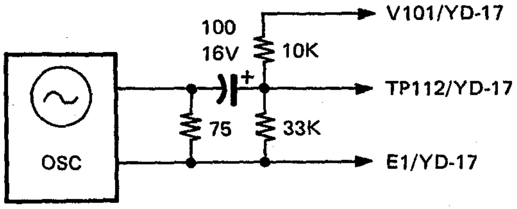
13-2-3. Dropout Compensator DC Balance and Level Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • Playing back the segment of Pseudo color bar.	TP107/YD-17 	DC Balance adj. ⊘RV110/YD-17 Level adj. ⊘RV106/YD-17 DC Bias adj ⊘RV105/YD-17 TRIG: 13B/YD-17

13-2-4. SP Mode Detector Adjustment

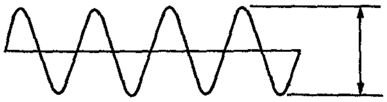
machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of Alignment tape.	TP4/YD-17  A: Maximize the sync portion amplitude.	⊘LV2/YD-17 TRIG: INT

13-2-5. PB Y Phase Equalize Adjustment (SP)

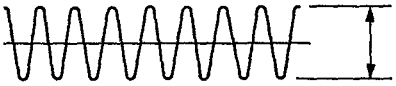


Sin wave 3.36/6.2/7.08 MHz
0.3 Vp-p

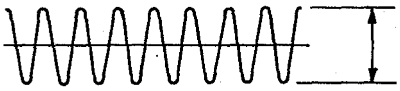
Step 1. RV103/YD-17 Pre-set

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • Unsolder SL1/YD-17. • POWER ON. • EE mode. • Adjust OSC output level so that the amplitude is approximately 3.36MHz, 0.3Vp-p.	TP103/YD-17  Maximize the this amplitude	⊘RV103/YD-17 TRIG: INT

Step 2. Phase equalize adjustment 1.

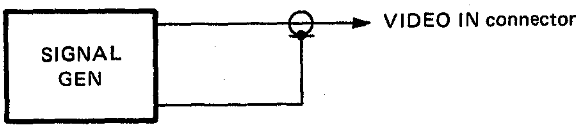
machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • Unsolder SL1/YD-17. • POWER ON. • EE mode. • Adjust OSC output level so that the amplitude is approximately 6.2 MHz, 0.3 Vp-p. • Short TP114/YD-17 – V101/YD-17.	TP103/YD-17  Minimize the this amplitude	⊘LV102/YD-17 TRIG: INT

Step 3. Phase equalize adjustment 2.

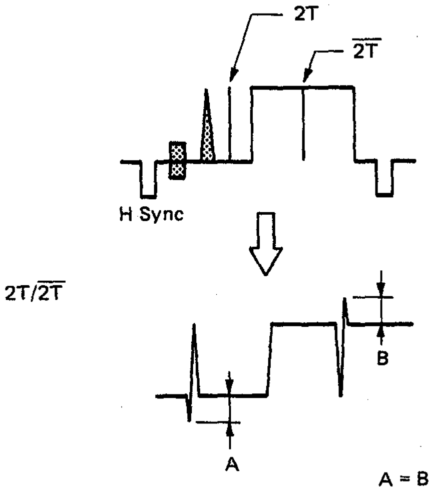
machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • Unsolder SL1/YD-17. • POWER ON. • EE mode. • Adjust OSC output level so that the amplitude is approximately 7.08MHz, 0.3Vp-p. • Short TP115/YD-17 – V101/YD-17.	TP103/YD-17  Minimize the this amplitude	⊘ LV103/YD-17 TRIG: INT

NOTE: After completing this adjustment, perform the section 13-2-8. SP Y Output Level Adjustment.

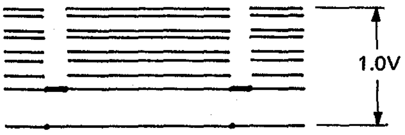
13-2-6. PB Y Phase Equalize Adjustment (Conventional)



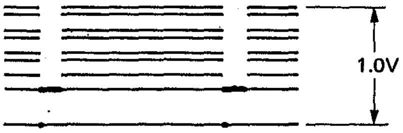
2T Bar/2T Pulse

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • VIDEO IN: Mod IOT pulse. • Playing back the self recorded tape use the KCA or KCS cassette.	VIDEO OUT connector  2T $\overline{2T}$ H Sync 2T/$\overline{2T}$ B A A = B	⊘RV109/YD-17 TRIG: INT

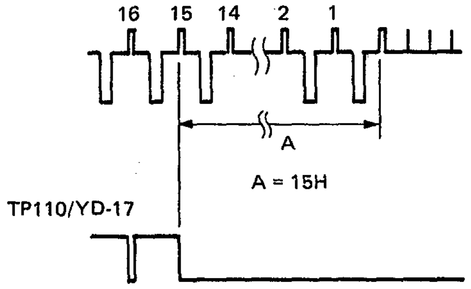
13-2-7. Y Output Level Adjustment (Conventional)

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of Alignment tape.	TP205/YD-17  If TP205/YD-17 has noise take reading at the center of noise.	⊘ RV102/YD-17 TRIG: 13B/YD-17

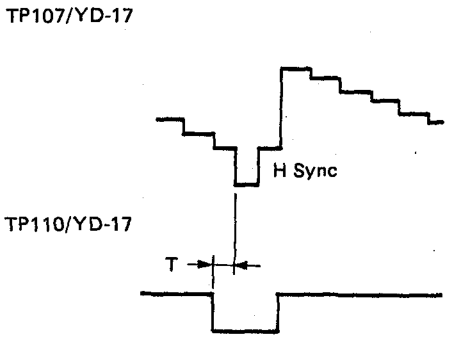
13-2-8. Y Output Level Adjustment (SP)

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of SP Alignment tape.	TP205/YD-17  If TP205/YD-17 has noise, take reading at the center of noise.	⊘ RV103/YD-17 TRIG: 13B/YD-17

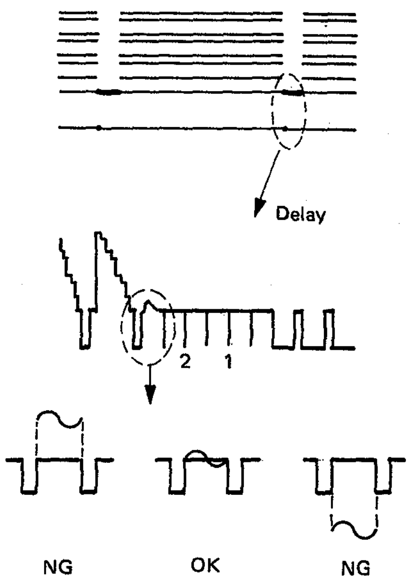
13-2-9. V BLK Pulse Width Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of Alignment tape. • Oscilloscope: CHOP mode.	TP107/YD-17 	⊘ RV107/YD-17 TRIG: 13B/YD-17

13-2-10. H BLK Pulse Width Adjustment

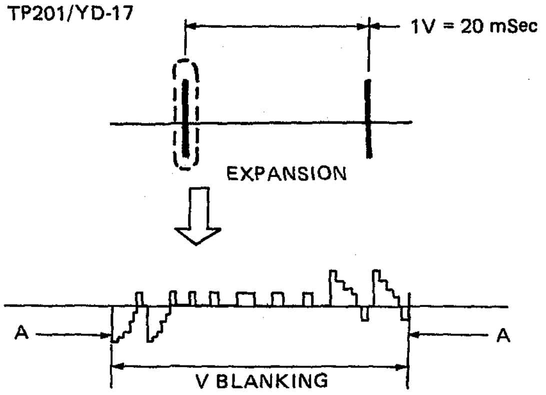
machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of Alignment tape. • Oscilloscope: CHOP mode.	 T = 6 μs ± 1 μs	⊘ RV108/YD-17 TRIG: TP107/YD-17

13-2-11. Switching Transient DC Balance Adjustment

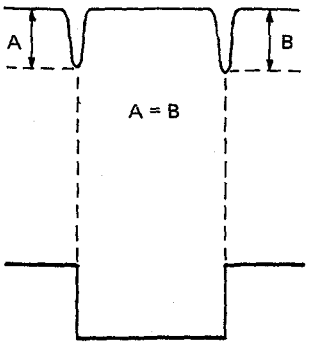
machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of Alignment tape.	TP107/YD-17 	⊘ RV104/YD-17 TRIG: 13B/YD-17

13-2-12. 2fc Beat Cancel Adjustment

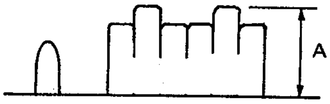
Step 1. Subtraction level adjustment

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • VIDEO IN; PAL color bar. • EE mode.	TP201/YD-17  Any Signal is to be disappeard in area A	⊘RV201/YD-17 TRIG: 13B/YD-17

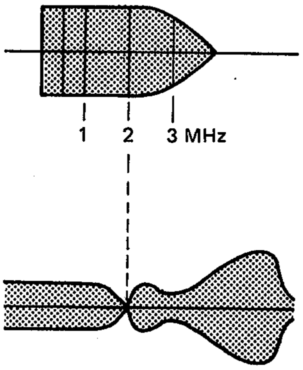
Step 2. Equalaize pulse balance/DC level adjustment

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • VIDEO IN; PAL color bar. • EE mode. • Temporarilly set the RV204/YD-17 to fully CCW (component side view). • After Balance adjustment is completed, measure the DC voltage at TP206 and get the value. • Its value is as "A".	1. Balance adj. TP206/YD-17 TP107/YD-17  this pulse is equalizing pulse. 2. DC Balance adj. SPEC = A – 0.05 Vdc	1. Balance adj. ⊘RV203/YD-17 2. DC Level adj. ⊘RV204/YD-17 TRIG: 13B/YD-17

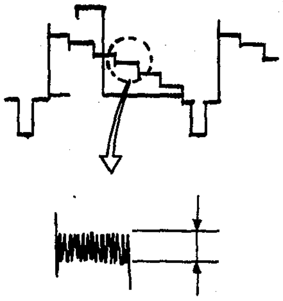
Step 3. Clamp level adjustment

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • VIDEO IN; PAL color bar. • EE mode.	TP202/YD-17  A = 0.7V ± 0.05 Vp-p	⊘RV205/YD-17 TRIG: TP109/YD-17

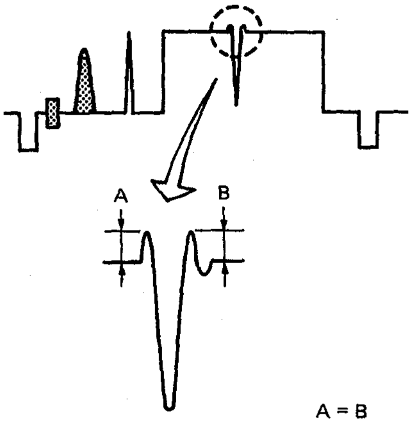
Step 4. Modulator balance adjustment

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • S201/YD-17: OFF (2fsc ON) • Playing back the Gated Sweep (color) segment of SP Alignment tape. • Oscilloscope: CHOP mode. • After adjustment is completed, ON position the S201/YD-17.	TP205/YD-17 TP207/YD-17  Minimize the 2 MHz portion	⊘RV206/YD-17 TRIG: TP109/YD-17

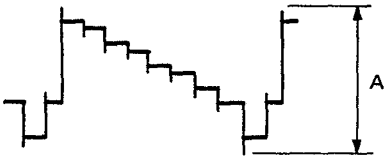
13-2-13. 2Fsc Beat Cancel Level Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • Playing back the color bar segment of Alignment tape.	TP205/YD-17  Minimize the this amplutude	⊘RV207/YD-17 TRIG: INT

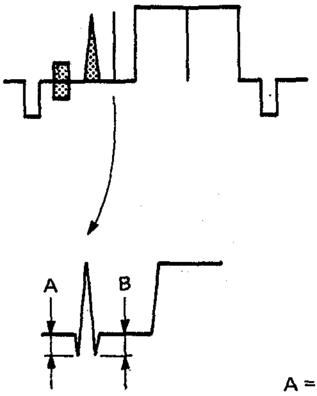
13-2-14. SP Mode Prephase Equalizer Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • Remove the solder of SL501/CD-29. • Short TP2/CD-29 – E5/CD-29. • Playing back the MOD 10T pulse segment of SP Alignment tape. • Set the switch S501/CD-29 to off.	VIDEO OUT connector (terminated by 75 ohm)  A = B	⊘LV101/YD-17 TRIG: INT

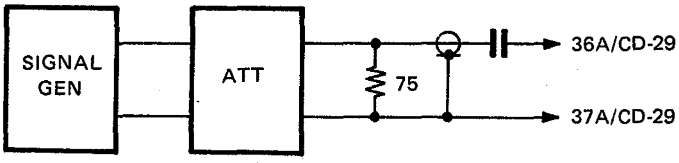
13-2-15. Demodulated Y Level Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of Alignment tape.	TP503/CD-29  A = 0.7V	⊘RV507/CD-29 TRIG: 13A/CD-29

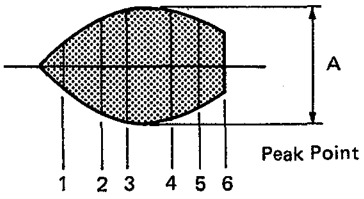
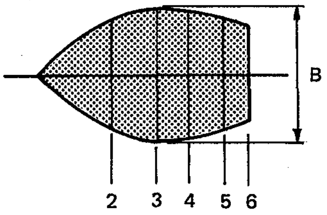
13-2-16. Demodulated Y Phase Equalize Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • Short SL501/CD-29 by solder. • Short TP2/CD-29 — E5/CD-29. • S501/CD-29: ON • Playing back the MOD 10T pulse segment of SP Alignment tape. • After adjustment is completed, remove the shorting clip.	TP504/CD-29  A = B	⊘RV506/CD-29 TRIG: TP11/CD-29

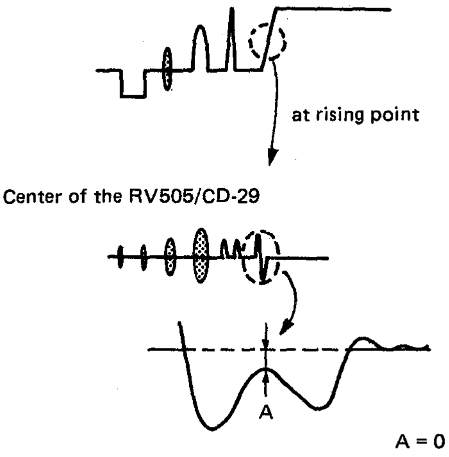
13-2-17. Noise Canceller Adjustment


SIGNAL GEN
ATT
75
36A/CD-29
37A/CD-29

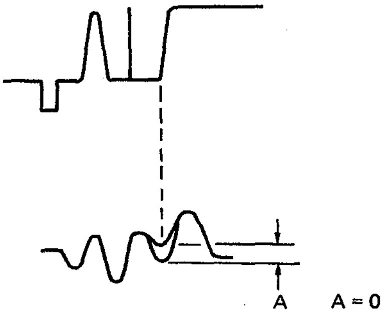
Step 1. Y level adjustment

machine conditions for adjustment	spec.	adjustment
• Without YD-17 board. • Extend CD-29 board by extention board EX-7. • Connect the Signal Gen. • Signal Gen output is Sweep signal. (without sync). • –30 dB set to the ATT. • Short TP505/CD-29 – E502/CD-29. • S501/CD-29: OFF. • Unsolder SL502/CD-29. • POWER ON. • After adjustment is completed, remove the short clip return the S501/CD-29 to ON, and solder the SL501/CD-29.	TP506/CD-29  A Peak Point 1 2 3 4 5 6 Memorize the A Level ⇩ TP507/CD-29  B = A x 2.66	⊘RV502/CD-29 TRIG: SIGNAL GEN COMP. SYNC

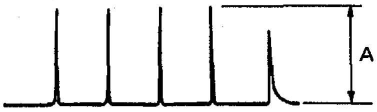
Step 2. Edge compensate adjustment

machine conditions for adjustment	spec.	adjustment
• Without YD-17 board. • Extend CD-29 board by extention board EX-7. • Connect the Signal Gen. • Signal Gen output is MOD 20T signal. • 0 dB set to the ATT. • Short TP505/CD-29 – E502/CD-29. • S501/CD-29 ON. • Solder SL502/CD-29. • POWER ON.	36A/CD-29 (input signal, 0.7 Vp-p)  	⊘ RV504/CD-29 TRIG: 36A/CD-29

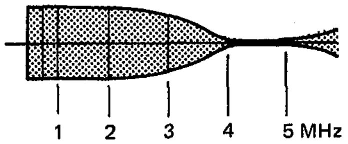
Step 3. Edge compensate adjustment (2)

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • VIDEO IN: MOD 10T pulse. • EE mode. • Short TP2/CD-29 – E502/CD-29.	TP504/CD-29  TP509/CD-29	⊘ RV509/CD-29 TRIG: INT

Step 4. Edge compensator adjustment (3)

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • VIDEO IN: MOD 5 STEP • EE mode. • Short TP2/CD-29 – E502/CD-29. • After adjustment is completed remove the shorting clip.	TP508/CD-29  A = 160 mV ± 10 mV	⊘ RV508/CD-29 TRIG: INT

Step 5. Noise canceller adjustment

machine conditions for adjustment	spec.	adjustment
• Without YD-17 board. • Extend CD-29 board by extention board EX-7. • Connect the Signal Gen. • Signal Gen output is Sweep signal (without sync). • –26 dB set to the ATT. • Short TP505/CD-29 – E502/CD-29. • Solder SL502/CD-29. • POWER ON.	TP504/CD-29  Minimize the amplitude between 4 MHz and 5 MHz.	⊘ RV505/CD-29 TRIG: SIGNAL GEN COMP. SYNC

13-3. CHROMA DEMODULATOR ADJUSTMENT

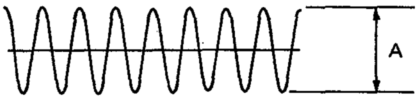
13-3-1. REF OSC Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • VIDEO IN: PAL color bar. • EE mode.	TP16/CD-29 4,433,619 Hz ± 5 Hz	⊘ T1/CD-29

13-3-2. VCO DC Level Adjustment

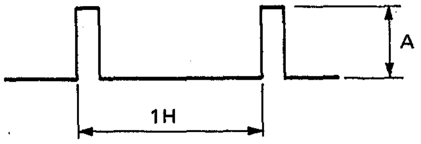
machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • VIDEO IN: PAL color bar. • EE mode.	TP9/CD-29 8.4V ± 0.1 Vdc	⊘ RV20/CD-29

13-3-3. 5.35 MHz Level Adjustment

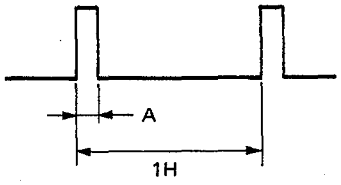
machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • VIDEO IN: PAL color bar. • EE mode.	TP15/CD-29  A = 0.6V ± 0.03V	⊘ RV21/CD-29 TRIG: INT

13-3-4. PB ACC Burst Gate Adjustment

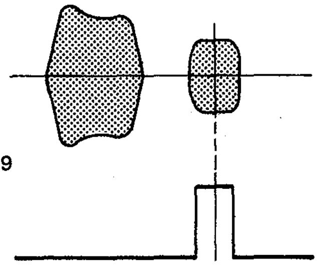
Step 1. Burst flag level adjustment

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of SP Alignment tape.	TP10/CD-29  A = 4.5V ± 0.1V	⊘RV19/CD-29 TRIG: TP11/CD-29

Step 2. Burst flag width adjustment

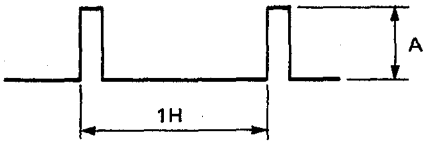
machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of SP Alignment tape.	TP10/CD-29  A = 2.2 μs ± 0.1 μs	⊘RV17/CD-29 TRIG: TP11/CD-29

Step 3. Burst flag phase adjustment

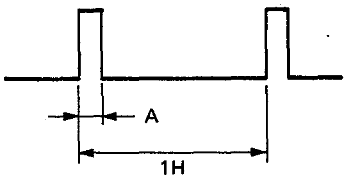
machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of SP Alignment tape. • Oscilloscope: CHOP mode.	TP5/CD-29 TP10/CD-29  Adjust the center of both wave.	⊘RV16/CD-29 TRIG: TP11/CD-29

13-3-5. PB APC Burst Gate Adjustment

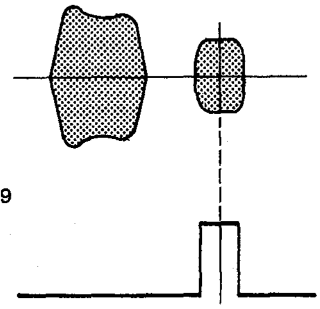
Step 1. Burst flag level adjustment

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of SP Alignment tape.	TP8/CD-29  A = 3.4V ± 0.1V	⊘RV18/CD-29 TRIG: TP11/CD-29

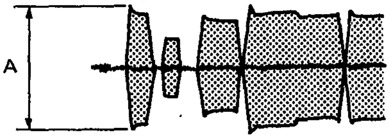
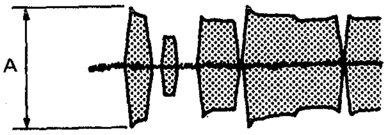
Step 2. Burst flag width adjustment

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of SP Alignment tape.	TP8/CD-29  A = 2.2 μs ± 0.1 μs	⊘RV14/CD-29 TRIG: TP11/CD-29

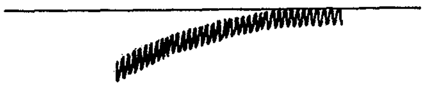
Step 3. Burst flag phase adjustment

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of SP Alignment tape. • Oscilloscope: CHOP mode.	TP5/CD-29  TP8/CD-29 Adjust the center of both wave.	⊘RV13/CD-29 TRIG: TP11/CD-29

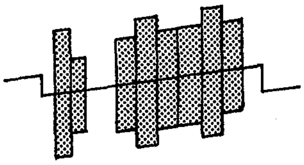
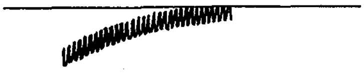
13-3-6. PB ACC Level Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of SP Alignment tape.	TP4/CD-29  A = 0.8V ± 0.05V	⊘ RV12/CD-29 TRIG: TP11/CD-29
	TP3/CD-29  A = 0.8V ± 0.05V	⊘ RV6/CD-29 TRIG: TP11/CD-29

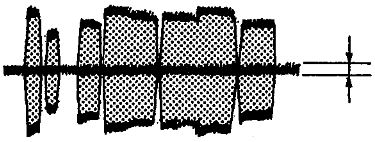
13-3-7. DG Compensator Pre Adjustment 1.

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • VIDEO IN: MOD 5 STEP. • Playing back the self recorded tape use the KSP cassette.	VIDEO OUT connector (75Ω terminated) Vectorscope Flatten the right side  DG ≦ 3%	⊘ RV5/CD-29

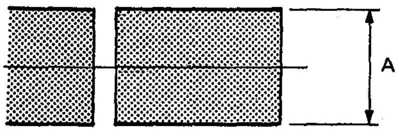
13-3-8. DG Compensator Pre Adjustment 2.

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • VIDEO IN: MOD 5 STEP. • Playing back the self recorded tape use the KSP cassette.	TP4/CD-29  Equalize the DC level.	⊘RV7/CD-29 TRIG: TP11/YD-17
• VIDEO IN: MOD 5 STEP. • Playing back the self recorded tape use the KCA or KCS cassette.	VIDEO OUT connector (75Ω terminated) Vectorscope Flatten the right side  DG ≦ 5%	⊘RV-28/CD-29

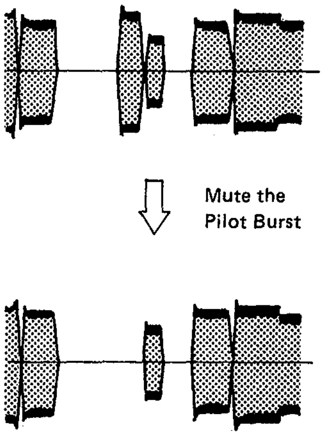
13-3-9. Converter Balance Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of SP Alignment tape.	TP5/CD-29  Minimize the carrier leak.	⊘RV8/CD-29 TRIG: TP11/CD-29

13-3-10. DUB Chroma Level Adjustment

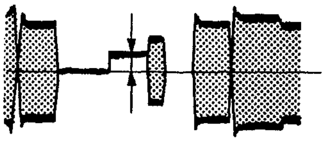
machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of Alignment tape.	31B/CD-29  A = 1.0V ± 0.1V	⊘ RV3/CD-29 TRIG: TP11/CD-29

13-3-11. Pilot Burst Gate Pulse Adjustment

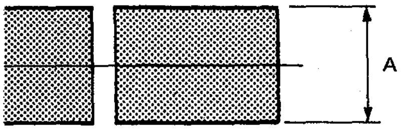
machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of SP Alignment tape. • Set the RV10/CD-29 to fully CCW (component side view).	TP7/CD-29  	⊘ RV15/CD-29 TRIG: TP11/CD-29

NOTE: After completing this adjustment, perform the section 13-3-14. High Speed ACC Frequency Response Adjustment.

13-3-12. Pilot Burst DC Balance Adjustment

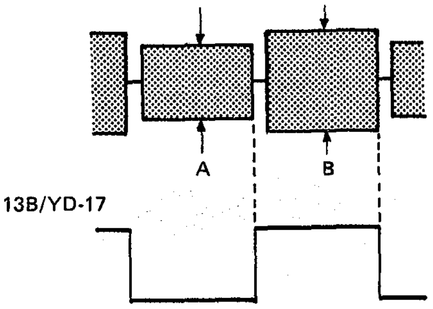
machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of SP Alignment tape.	TP7/CD-29  Equalize the DC level.	⊘ RV9/CD-29 TRIG: TP11/CD-29

13-3-13. High Speed ACC Level Adjustment

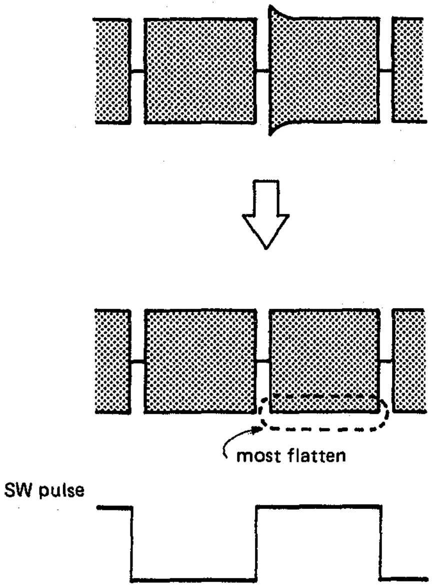
machine conditions for adjustment	spec.	adjustment
- Extend CD-29 board by extention board EX-7. - POWER ON. - Playing back the color bar segment of SP Alignment tape.	TP7/CD-29  A = 0.45V ± 0.02V	⊘RV11/CD-29 TRIG: TP11/CD-29

13-3-14. High Speed ACC Frequency Adjustment

Step 1. Chroma RF balance setting

machine conditions for adjustment	spec.	adjustment
- Extend YD-17 board by extention board EX-7. - POWER ON. - Playing back the color bar segment of SP Alignment tape.	10B/YD-17  A : B = 4 : 5	⊘RV5/YD-17 TRIG: 13B/YD-17

Step 2. High speed ACC adjustment

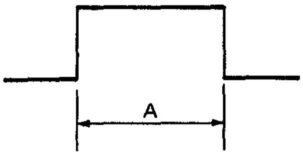
machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • Short Corrector (TP26) – Emitter (TP27)/Q21 on CD-29 board. • POWER ON. • Playing back the color bar segment of SP Alignment tape. • Preset RV10/CD-29 to fully CCW.	TP7/CD-29 	⊘RV10/CD-29 TRIG: TP13/CD-29

NOTE: After completing this adjustment, perform the Section 13-1-5. PB chroma RF Balance Adjustment.

13-3-15. TBC Mode APC Adjustment

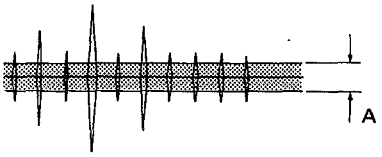
machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • MODE SELECT sw: TBC. • Playing back the color bar segment of SP Alignment tape. • SERCH FWD 1/30 → STILL. • SERCH REV 1/30 → STILL.	TP9/CD-29 SERCH FWD 1/30 → STILL mode. 9.15V ± 0.05V dc (at STILL mode)	⊘RV23/CD-29
	TP9/CD-29 SERCH REV 1/30 → STILL mode. 7.7V ± 0.05V dc (at STILL mode)	⊘RV22/CD-29

13-3-16. Blanking Pulse Width Adjustment

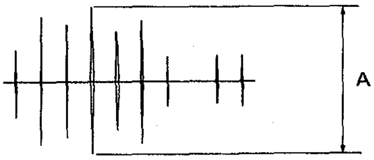
machine conditions for adjustment	**spec.**	**adjustment**
• Extend CD-29 board by extention board EX-7. • POWER ON. • STAND-BY mode.	TP21/CD-29  A = 1.1 ms to 1.2 ms	⊘ RV24/CD-29 TRIG: 13A/CD-29

13-3-17. Chroma Enhancer Adjustment

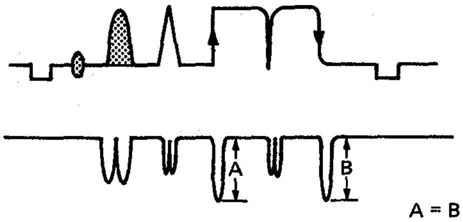
Step 1. Chroma edge phase adjustment

machine conditions for adjustment	**spec.**	**adjustment**
• Extend CD-29 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN: PAL color bar. • Minimize the leak level.	TP302/CD-29  A ≦ 50 mVp-p A : leak of chroma	⊘ RV301/CD-29 ⊘ LV301/CD-29 TRIG: TP11/CD-29

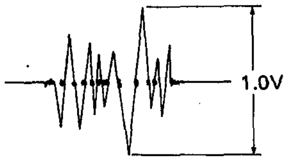
Step 2. Chroma edge phase level adjustment

machine conditions for adjustment	**spec.**	**adjustment**
• Extend CD-29 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN: PAL color bar.	TP302/CD-29  A = 0.55 ± 0.02 Vp-p	⊘ RV302/CD-29 TRIG: TP11/CD-29

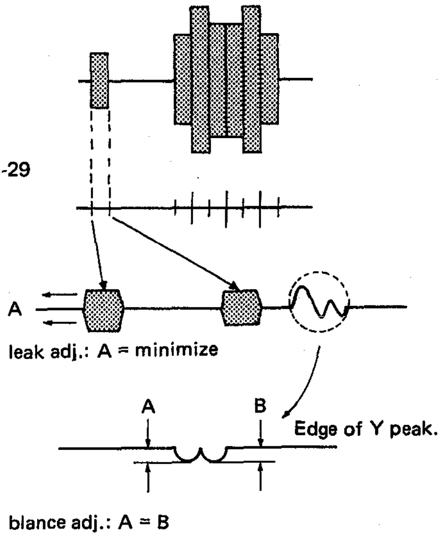
Step 3. Y edge balance adjustment

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN: MOD 10T pulse. • Set the RV309 to fully CCW (component side view).	TP305/CD-29  A = B	⊘ RV308/CD-29 TRIG: TP11/CD-29

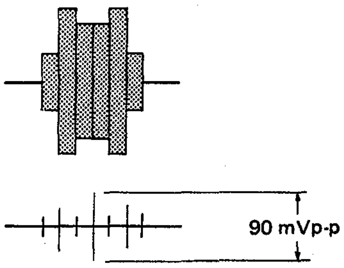
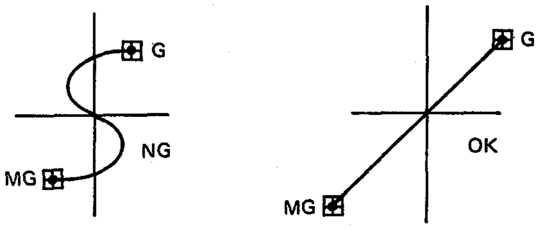
Step 4. Y edge level adjustment

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of SP Alignment tape.	TP307/CD-29  1.0 ± 0.1 Vp-p	⊘ RV309/CD-29

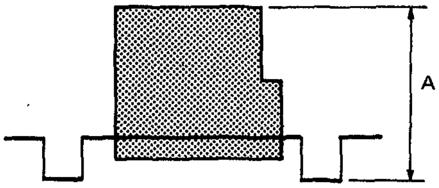
Step 5. Chroma leak minimum adjustment

machine conditions for adjustment	spec.	adjustment
leak Adj. • Extend CD-29 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN: PAL color bar.	TP303/CD-29 TP301/CD-29  A leak adj.: A = minimize A B Edge of Y peak. blance adj.: A = B	leak adj. ⊘RV303/CD-29
balance Adj. • Extend CD-29 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN: PAL color bar. • Shorten TP2 and GND with the shorting clip. • After adjustment is completed, remove the shorting clip.		balance adj. ⊘RV310/CD-29 TRIG: TP11/CD-29

Step 6. Enhancer level adjustment

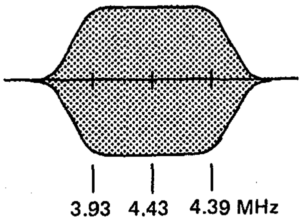
machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN: PAL color bar. • Set the switch S301 ON and RV305 to fully CCW (component side view).	TP303/CD-29 TP308/CD-29  90 mVp-p A = 90 mVp-p ± 5 mVp-p	⊘RV304/CD-29 TRIG: TP11/CD-29
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the color bar segment of SP Alignment tape.	Screen On The Vector Scope  G NG MG G OK MG Adjust to the point of the minimum changing on sweepline when S301 goes to on or off alternately.	⊘RV305/CD-29 TRIG: TP11/CD-29

13-3-18. Y/C Mix Level Adjustment

<table>
<tr><th>machine conditions for adjustment</th><th>spec.</th><th>adjustment</th></tr>
<tr><td>• Extend CD-29 board by extention board EX-7.
• POWER ON.
• Playing back the color bar segment of SP Alignment tape.</td><td>VIDEO OUT connector
(terminated by 75 ohm)


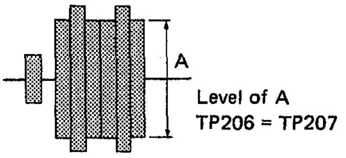
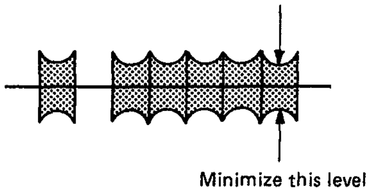
A = 1.0 ± 0.05 Vp-p</td><td>⊘RV507/CD-29
TRIG: INT</td></tr>
</table>

13-3-19. PB Chroma Frequency Adjustment (SP)

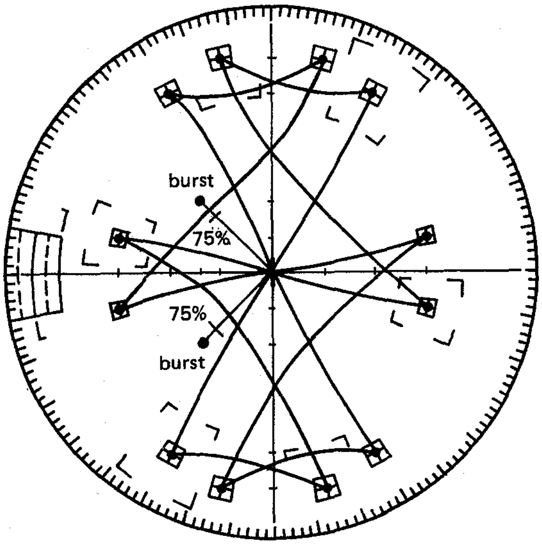
<table>
<tr><th>machine conditions for adjustment</th><th>spec.</th><th>adjustment</th></tr>
<tr><td>• Extend CD-29 board by extention board EX-7.
• POWER ON.
• Playing back the Gated Sweep (with burst) segment of SP Alignment tape.</td><td>TP303/CD-29


<table><tr><th>3.93 MHz</th><th>4.43 MHz</th><th>4.93 MHz</th></tr><tr><td>96%
± 10%</td><td>100%
REF</td><td>80%
± 10%</td></tr></table>Read at the center of moire.</td><td>⊘RV29/CD-29</td></tr>
</table>

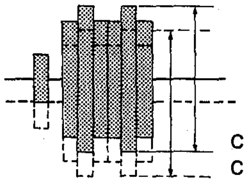
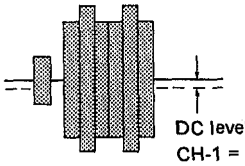
13-3-20. YC-19 Board Delay Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; PAL color bar. • Adjust the level to identify each other.	TP207/YC-19: CH-A 	⊘RV205/YC-19 TRIG: TP1/YC-19
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; PAL color bar. • Change the vertical mode of oscilloscope to ADD mode.	TP206/YC-19: CH-B 	⊘RV204/YC-19 TRIG: TP1/YC-19

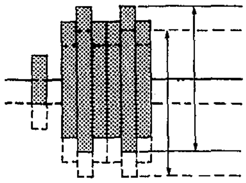
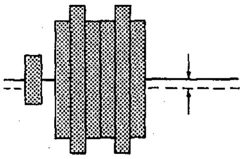
13-3-21. YC-19 Board Slice Level Adjustment (1)

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; PAL color bar. • Screen on the vectorscope. • Before adjustment, set the phase of each color to "⊞" position with Phase VR and GAIN VR of vectorscope.	TP208/YC-19  The Burst level to 75% position adjust.	⊘RV206/YC-19

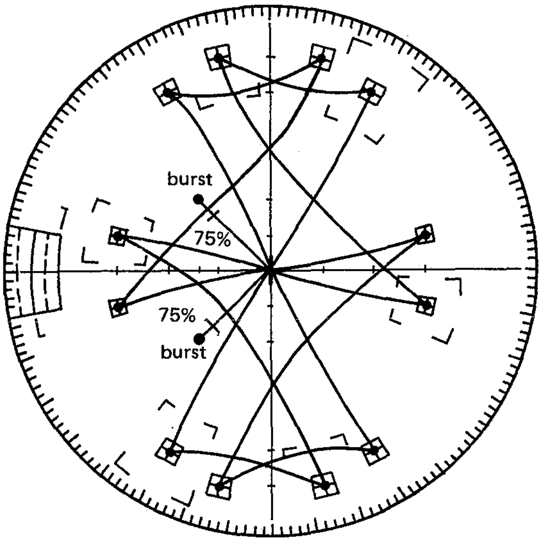
13-3-22. YC-19 Board Mix Level Adjustment (1)

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; PAL color bar. • Oscilloscope: UNCAL, CHOP mode. • First adjustment the level of CH-1 and CH-2 to the same level with UNCAL VR of synchroscope.	TP207/YC-19 (CH-1) TP212/YC-19 (CH-2) 	Chroma level adj. ⊘ Syncroscope
	TP207/YC-19 (CH-1) TP212/YC-19 (CH-2) 	DC level adj. ⊘ RV203/YC-19 TRIG: TP211/MD-25

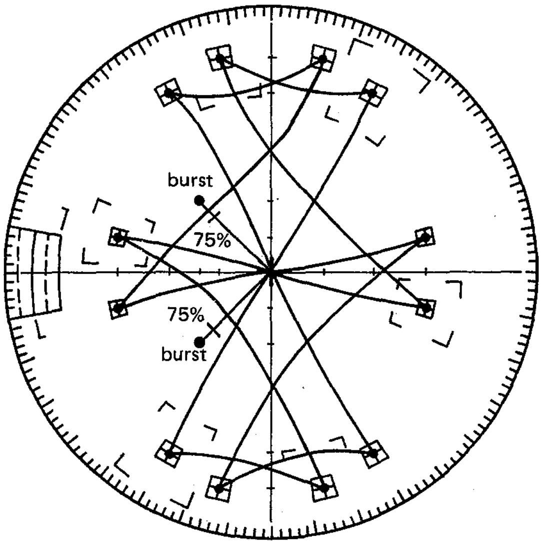
13-3-23. YC-19 Board Mix Level Adjustment (2)

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; PAL color bar. • Oscilloscope: UNCAL, CHOP mode. • First adjustment to level of CH-1 and CH-2 to the same level with UNCAL VR of synchroscope.	TP210/YC-19 (CH-1) TP212/YC-19 (CH-2) 	⊘ Syncroscope TRIG: TP211/MD-25
	TP210/YC-19 (CH-1) TP211/YC-19 (CH-2) 	⊘ RV208/YC-19 TRIG: TP211/MD-25

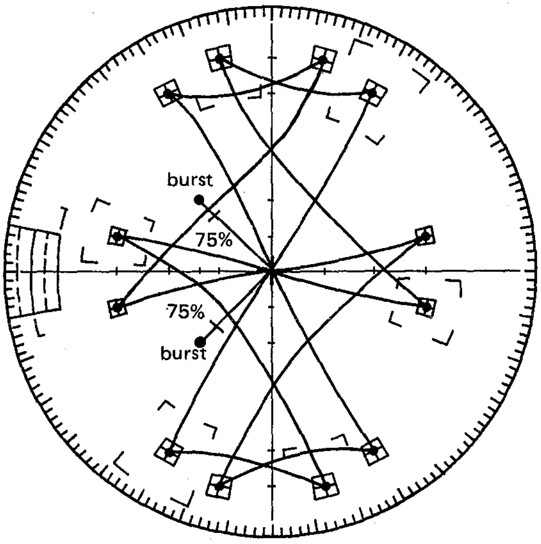
13-3-24. YC-19 Board Slice Level Adjustment (2)

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; PAL color bar. • Screen on the vectorscope. • Before adjustment, set the phase of each color to "⊞" position with phase VR and GAIN VR of Vectorscope.	TP209/YC-19  The Burst level to 75% position adjust.	⊘RV207/YC-19

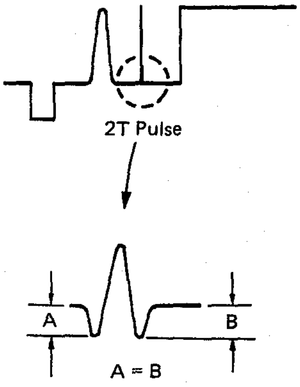
13-3-25. YC-19 Board Slice Level Adjustment (3)

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; PAL color bar • Screen on the vectorscope. • Before adjustment, set the phase of each color to "⊞" position with phase VR and GAIN VR of Vectorscope.	TP204/YC-19  The Burst level to 75% position adjust.	⊘RV201/YC-19

13-3-26. YC-19 Board Slice Level Adjustment (4)

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; PAL color bar. • Screen on the vectorscope. • Before adjustment, set the phase of each color to "⊞" position with phase VR and GAIN VR of Vectorscope.	TP205/YC-19  The Burst level to 75% position adjust.	⊘RV202/YC-19

13-3-27. YC-19 Board Y Phase Equalize Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; MOD 10T.	TP2/MD-25 	⊘RV1/YC-19 TRIG: INT

13-4. MODULATOR ADJUSTMENT

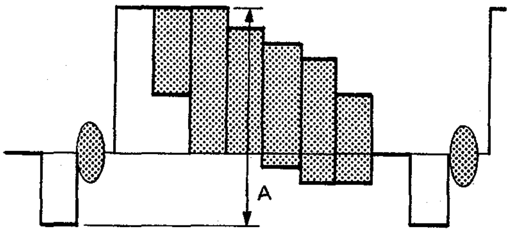
13-4-1. Sync Tip Carrier Frequency Adjustment (SP)

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; no signal.	TP9/MD-25 5.8 ± 0.05 MHz	⊘RV5/MD-25 board

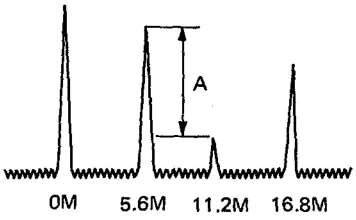
13-4-2. Sync Tip Carrier Frequency Adjustment (convertional)

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; no signal	TP9/MD-25 4.8 MHz ± 0.05 MHz	⊘RV6/MD-25 board

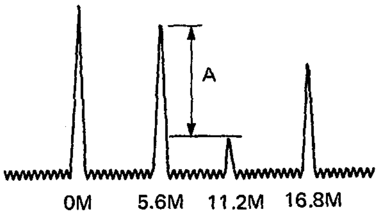
13-4-3. FM Deviation Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; PAL color bar.	VIDEO OUT (75Ω terminated)  A = 1 ± 0.01V	⊘RV1/MD-25 TRIG: INT

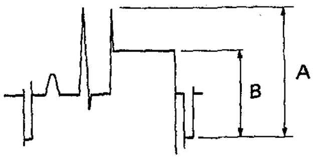
13-4-4. Modulator Balance Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; no signal • Input select sw; DUB. • Observe the screen of spectrum analizer • INSERT the SP Tape.	TP11/MD-25 SPECTRAL ANALYZER  Minimize this 2nd component. A ≧ 40 dB	⊘ RV7/MD-25

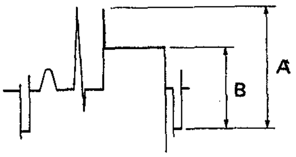
13-4-5. REC HF Balance Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; no signal. • INPUT SELECT SW. DUB. • Insert the SP tape.	TP12/MD-25 . SPECTRAL ANALYZER  Minimize this 2nd component. A ≧ 40 dB	⊘ RV8/MD-25

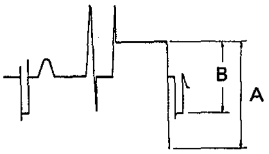
13-4-6. White Clip Adjustment (SP)

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; MOD 10T. • Insert the SP tape.	TP301/MD-25 SPECTRAL ANALYZER  1. Reference to B as 100% A: 230 ± 5% (SP mode)	⊘ RV301/MD-25 TRIG: INT

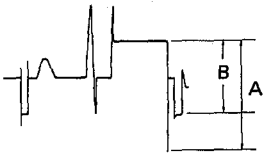
13-4-7. White Clip Adjustment (conventional)

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; MOD 10T. • Insert the conventional tape.	TP301/MD-25  2. Reference to B as 100% A: 220 ± 5% (conventional mode)	⊘RV302/MD-25 TRIG: INT

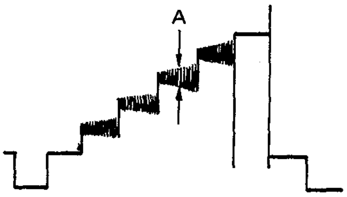
13-4-8. Dark Clip Adjustment (SP)

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; MOD 10T. • SP mode.	TP301/MD-25  Reference to B as 100% A: 220% ± 5% (SP mode)	⊘RV303/MD-25 TRIG: INT

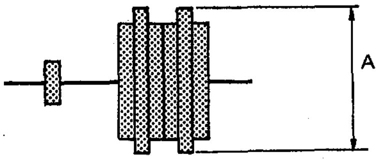
13-4-9. Dark Clip Adjustment (Conventional)

machine conditions for adjustment	**spec.**	**adjustment**
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; MOD 10T. • Conventional mode.	TP301/MD-25  Reference to B as 100% A: $200\%^{+0}_{-5}\%$ (conventional mode)	⊘ RV304/MD-25 TRIG: INT

13-4-10. Subcarrier Trap Adjustment

machine conditions for adjustment	**spec.**	**adjustment**
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; MOD 10T. • Shorten TP9/MD-25 to TP10/MD-25 with short clip. • After this adjustment remove the short clip.	TP302/MD-25  minimize the A A ≦ 40 mVp-p	⊘ LV301/MD-25 TRIG: INT

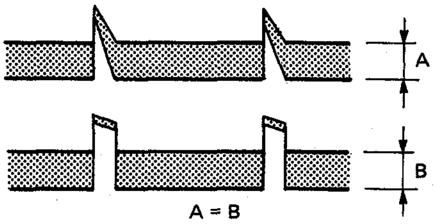
13-4-11. REC ACC Adjustment

machine conditions for adjustment	**spec.**	**adjustment**
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • SP mode. • VIDEO IN; PAL color bar.	TP203/MD-25  A = 0.8 ± 0.05 Vp-p	⊘ RV203/MD-25 TRIG: TP211/MD-25

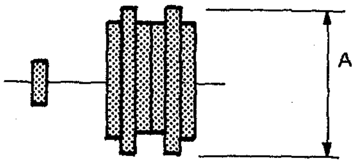
13-4-12. APC DC Adjustment

machine conditions for adjustment	**spec.**	**adjustment**
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • Make input select sw "DUB".	TP207/MD-25 8.4V ± 0.1 Vdc using with Digital Voltage meter.	⊘ RV208/MD-25

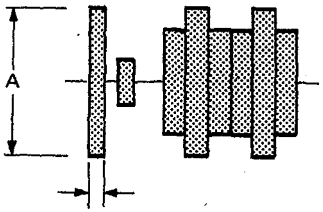
13-4-13. REC APC Adjustment

machine conditions for adjustment	**spec.**	**adjustment**
• Extend MD-25 board by extention board EX-7. • EE mode. • VIDEO IN; PAL color bar.	TP207/MD-25  A = B	⊘ T201/MD-25 TRIG: 40B/MD-25

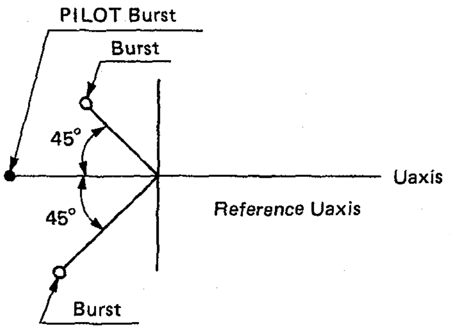
13-4-14. REC ACC Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • SP mode. • VIDEO IN; PAL color bar.	TP203/MD-25  A = 0.8 ± 0.05 Vp-p	⊘ RV203/MD-25 TRIG: TP211/MD-25

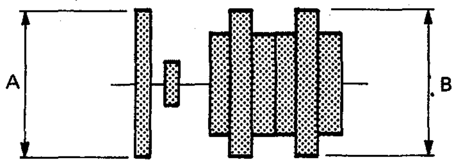
13-4-15. Pilot Burst Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; PAL color bar.	TP203/MD-25  T: 3.5 ± 0.1 μs	⊘ RV201/MD-25 TRIG: TP211/MD-25

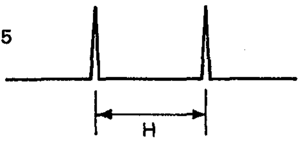
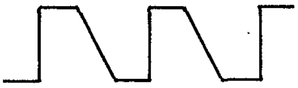
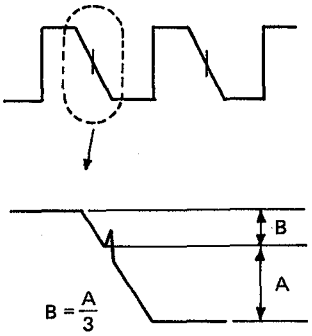
13-4-16. Pilot Burst Phase Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; color bar. • Observe the screen of vector-scope.	TP203/MD-25  PILOT Burst Burst 45° 45° Uaxis Reference Uaxis Burst	⊘ LV201/MD-25

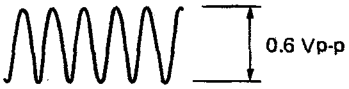
13-4-17. Pilot Burst Level Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; PAL color bar.	TP203/MD-25  A = B	⊘ RV202/MD-25 TRIG: TP211/MD-25

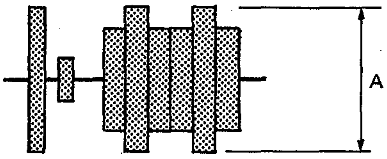
13-4-18. AFC Phase Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • VIDEO IN; PAL color bar. • EE mode. • Oscilloscope; ADD mode.	TP211/MD-25  TP210/MD-25  ADD mode 	⊘ RV204/MD-25 TRIG: INT

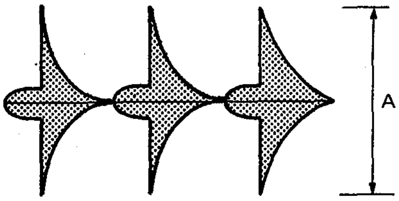
13-4-19. 5.35 MHz Level Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; PAL color bar.	TP206/MD-25 	⊘ RV207/MD-25

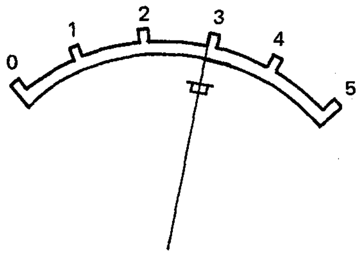
13-4-20. REC Chroma RF Level Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; PAL color bar.	TP212/MD-25  A = 0.5 ± 0.025 Vp-p	⊘ RV205/MD-25 TRIG: TP211/MD-25

13-4-21. REF 135° Burst Pulse Level Adjustment

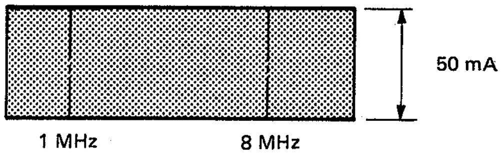
machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN; PAL color bar.	TP213/MD-25  A: 1.0 ± 0.1 Vp-p	⊘ RV206/MD-25

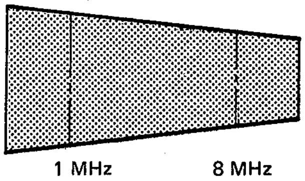
13-4-22. Adjustment for VIDEO Meter

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • VIDEO IN ; PAL color bar	VIDEO Meter  adjust the meter pointer to indicate "3"	⊘ RV502/MD-25

13-5. REC AMPLIFIER ADJUSTMENT

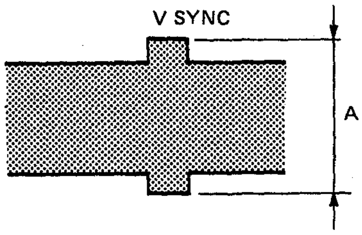
13-5-1. Y REC Current Frequency Response Adjustment

<table>
<tr><th>machine conditions for adjustment</th><th>spec.</th><th>adjustment</th></tr>
<tr>
<td rowspan="2">
- Remove the solder between TP5 and TP6, TP8 and TP9.
- Shorten between
TP4 and GND/RP-18
TP5 and TP6/RP-18
TP8 and TP9/RP-18
- VIDEO IN; PAL color bar.
- Supply a sweep signal to TP3 on RP-18 board.
- After adjustment are conpleted, remove the shorting clip.
</td>
<td>
TP5 and TP6/RP-18


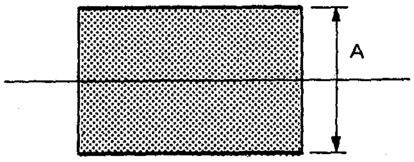
Current waveform observed using a current probe
</td>
<td>⊘ level control VR
On the signal generator
TRIG: VD/SIG GEN.</td>
</tr>
<tr>
<td>
TP5 and TP6/RP-18 (CH-A)
TP8 and TP9/RP-18 (CH-B)


<table>
<tr><th>Frequency</th><th>Level</th></tr>
<tr><td>1 MHz</td><td>100% Ref.</td></tr>
<tr><td>8 MHz</td><td>90% ± 10%</td></tr>
</table>
</td>
<td>⊘RV3/RP-18 (CH-A)
⊘RV5/RP-18 (CH-B)
TRIG: VD/SIG GEN.</td>
</tr>
</table>

13-5-2. Y REC Current Level Adjustment

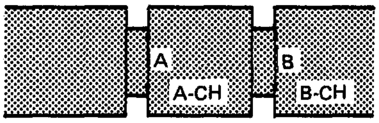
machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • VIDEO IN; PAL color bar. • Shorten between TP2 and GND/RP-18 Board- with shorting clip. • Supply the SP Tape and REC mode, SP mode. • Remove the solder from TP5 and TP6/RP-18. • Shorten between TP5 and TP6/RP-18 with shorting clip. • Observe the current waveform using current probe. • Supply the K Tape and REC mode, conventional mode.	TP5 and TP6/RP-18 (CH-A) TP8 and TP9/RP-18 (CH-B)  (SP): A = 55 m ± 5 mA (Conventional): A = 67 ± 5 mAp-p Current waveform observed using a current probe.	SP: ⊘RV2/RP-18 Conventional: ⊘RV9/MD-25 TRIG: VD/SIG GEN.

13-5-3. Chroma REC Current Adjustment

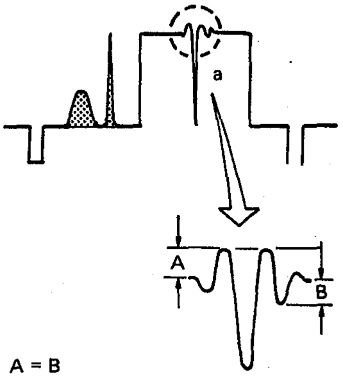
machine conditions for adjustment	spec.	adjustment
• Shorten the TP9 and TP10/ RP-18 with shorting clip. • VIDEO IN; PAL color bar. • Observe the waveform using with current probe. • Insert the SP tape and make "REC mode". • Remove the solder between TP5 and TP6/RP-18 and shorten this TPs with shorting clip. • After adjustment is performed.	TP5 and TP6/RP-18  A = 15 ± 5 mA	RV1/RP-18 TRIG: VD/SIG GEN.

13-6. OVERALL ADJUSTMENT

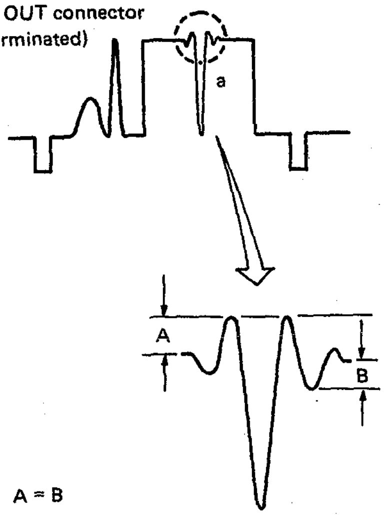
13-6-1. O.A Y-RF Level Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • VIDEO IN; PAL color bar. • Insert the SP tape and REC mode. • Playing the Self recorded part.	TP7/YD-17  1. level of CH-A = level of CH-B 2. A = 0.35V ± 0.05 Vp-p	1. ⊘RV10/YD-17 2. ⊘RV11/YD-17 TRIG: 13B/YD-17

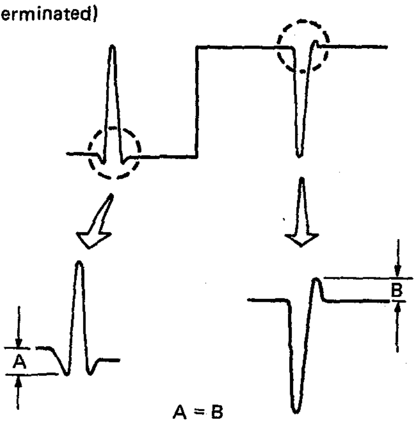
13-6-2. YD Phase Equalize Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • Remove the solder from SL501/CD-29. • Shorten TP2 and GND using with shorting clip. • S501/CD-29 goes to OFF. • Playing back the MOD 10T segment of SP Alignment tape. • After adjustment is completed solder SL501/CD-29 and remove the shorting clip.	VIDEO OUT connector (75Ω terminated)  A = B	⊘LV101/YD-17 TRIG: TP109/YD-17

13-6-3. CD Phase Equalize Adjustment

machine conditions for adjustment	spec.	adjustment
• Shorten TP2 and GND/ CD-29, TP508 and GND/ CD-29 with shorting clip. • S501/CD-29 goes to "ON". • Extend CD-29 board by extention board EX-7. • Playing back the MOD 10T segment of SP Alignment tape. • After this adjustment is completed, remove the shorting clip.	VIDEO OUT connector (75Ω terminated)  A = B	⊘RV506/CD-29 TRIG: TP1.1/CD-29

13-6-4. Conventional Mode O.A Y Phase Equalize Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • VIDEO IN; Pulse & Bar. • Insert the conventional Tape, record and playback. • Shorten 10B and GND/ YD-17 with shorting clip. • After this adjustment is completed, remove this shorting clip.	VIDEO OUT connector (75Ω terminated)  A = B	⊘RV109/YD-17 TRIG: TP11/CD-29

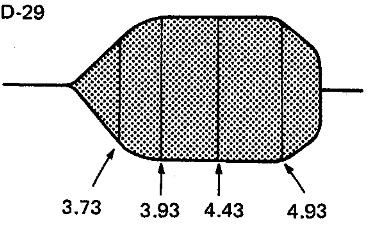
13-6-5. Play Back Chroma Frequency Characteristic Adjustment

<table>
<tr><th>machine conditions for adjustment</th><th>spec.</th><th>adjustment</th></tr>
<tr>
<td>

- Extend CD-29 board by extention board EX-7.
- Playing back the gated sweep segment of SP Alignment tape.

</td>
<td>

TP303/CD-29



<table>
<tr><th>frequency</th><th>SPEC</th></tr>
<tr><td>3.93</td><td>96 ± 6</td></tr>
<tr><td>4.43</td><td>100</td></tr>
<tr><td>4.93</td><td>80 ± 6</td></tr>
</table>

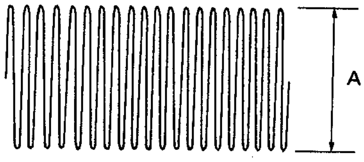
</td>
<td>

⊘RV29/CD-29

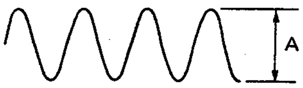
TRIG: INT

</td>
</tr>
</table>

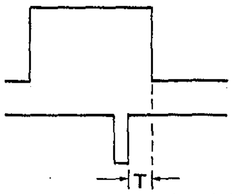
13-6-6. Rotary Erase Current Adjustment

machine conditions for adjustment	spec.	adjustment
• VIDEO IN; PAL color bar. • VIDEO INSERT mode. • Push "VIDEO" INSERT key. • Push "PLAY" "EDIT" key simultaneously.	CH-B RV102/RP-18  CH-A: TP104/RP-18 CH-B: TP102/RP-18 A = 1.0 ± 0.02 Vp-p	⊘RV101/RP-18 (CH-A) ⊘RV102/RP-18 (CH-B) TRIG: INT

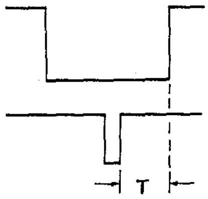
13-6-7. AFM Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend YD-17 board by extention board EX-7. • POWER ON. • Playing back the Pseudo color bar signal segment of alignment tape. • When the VTR is in shuttle/joy mode check the D3 is lighting or not.	TP2/AUD-1  A = 900 ± 50 mVp-p (D3 is lighting)	⊘RV3/AUD-1 TRIG: INT

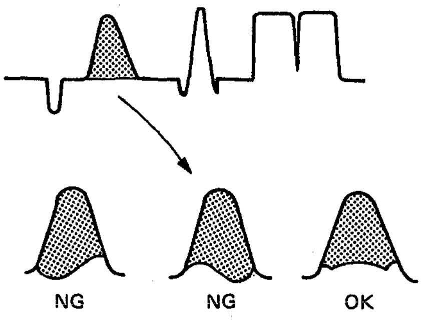
13-6-8. RE Mute Pulse (1) Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • Shorten 3B and 30B on MD-25 Board with short clip. • VIDEO IN; PAL color bar.	39B/MD-25 TP504/BC-7  T = 3.0 ± 0.05 ms	⊘ RV501/BC-7 TRIG: INT

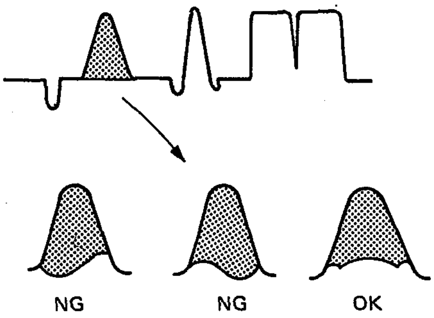
13-6-9. RE Mute Pulse (2) Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • POWER ON. • EE mode. • Shorten 3B and 30B on MD-25 board with short clip. • VIDEO IN; PAL color bar. • After this adjustment, remove the short clip.	39B/MD-25 TP503/BC-7  T = 3.0 ± 0.05 ms	⊘ RV502/BC-7 TRIG: INT

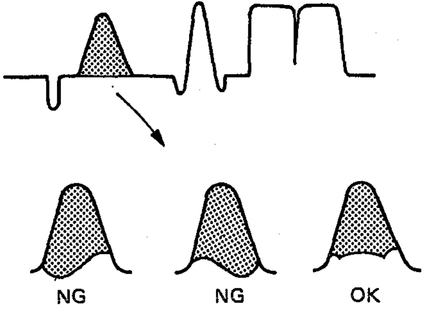
13-6-10. Y/C Delay PB Adjustment (SP)

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the MOD 10T segment of alignment tape. • Set the switch S1 off of MD-25 board. • Set the switch S301 off of CD-29 board.	VIDEO OUT connector (75Ω terminated) 	⊘DL1/CD-29 ⊘DL2/CD-29 TRIG: INT

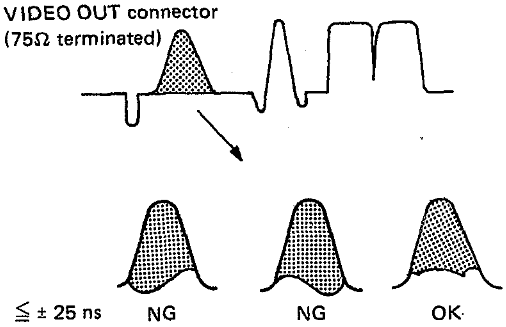
13-6-11. Y/C Delay PB Adjustment (Conventional)

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the MOD 20T segment of alignment tape. • Set the switch S1 off of MD-25 board. • Set the switch S301 off of CD-29 board.	VIDEO OUT connector (75Ω terminated) 	⊘RV2/CD-29 If cannot adjust charge the inside tap of DL1, DL2/CD-29. TRIG: INT

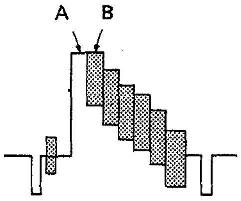
13-6-12. Y/C Delay Dub Adjustment (SP)

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • POWER ON. • Playing back the MOD 10T segment of alignment tape. • Set the switch S1 off of MD-25 board. • Set the switch S301 off of CD-29 board.	VIDEO OUT connector (75Ω terminated) 	⊘ DL3/CD-29 TRIG: INT

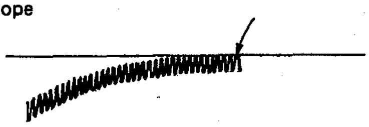
13-6-13. Y/C Delay REC Adjustment (SP)

machine conditions for adjustment	spec.	adjustment
• Extend MD-25 board by extention board EX-7. • VIDEO IN; MOD 10T. • Insert the SP Tape. • Record and playback.	VIDEO OUT connector (75Ω terminated) 	DL201/MD-25 TRIG: INT

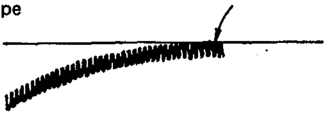
13-6-14. Y/C Mix Level Adjustment

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • VIDEO IN; PAL color bar. • Insert the SP Tape. • Playing back the self recorded tape.	VIDEO OUT connector (75Ω terminated)  Level of A = Level of B	⊘ RV306/CD-29 TRIG: INT

13-6-15. DG Compensation Adjustment (SP)

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • VIDEO IN; MOD 5 STEP. • INSERT the SP Tape. • Record and Playback mode. • Observe the waveform with vectorscope.	VIDEO OUT connector (75Ω terminated) Vectorscope  Flatten the right side DG ≦ 3%	⊘RV5/CD-29

13-6-16. DG Compensation Adjustment (conventional)

machine conditions for adjustment	spec.	adjustment
• Extend CD-29 board by extention board EX-7. • VIDEO IN; MOD 5 STEP. • Insert the conventional tape. • Record and playback mode. • Observe the waveform with vectorscope.	VIDEO OUT connector (75Ω terminated) Vectorscope  Flatten the right side DG ≦ 5%	⊘RV28/CD-29